zenith

SERVICE MANUAL

Model Series:

H27H49S
H32H49S

Product Type:	Presentation Series
Chassis:	DIGITAL FCS
Manual Part #:	3828VD0171G
Model Line:	H
Product Year:	2006

CONTENTS

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IMPORTANT SAFETY NOTICE

This Manual was prepared for use only by properly trained audio-visual service technicians. When servicing this product, under no circumstances should the original design be modified or altered without permission from Zenith Electronics Corporation. All components should be replaced only with types identical to those in the original circuit and their physical location, wiring and lead dress must conform to original layout upon completion of repairs.

Special components are also used to prevent x-radiation, shock and fire hazard. These components are indicated by the letter “x” included in their component designators and are required to maintain safe performance. Zenith Electronics Corporation allows no deviations without prior approval. Circuit diagrams may occasionally differ from the actual circuit used. This way, implementation of the latest safety and performance improvement changes into the set is not delayed until the new service literature is printed.

CAUTION: Do not attempt to modify this product in any way. Never perform customized installations without manufacturer’s approval. Unauthorized modifications will not only void the warranty, but may lead to property damage or user injury.

Service work should be performed only after you are thoroughly familiar with these safety checks and servicing guidelines.

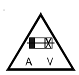
Graphic symbols



The exclamation point within an equilateral triangle is intended to alert the service personnel to important safety information in the service literature.



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the service personnel to the presence of non-insulated “dangerous voltage” that may be of sufficient magnitude to constitute a risk of electric shock.



The pictorial representation of a fuse and its rating within an equilateral triangle is intended to convey to the service personnel the following fuse replacement caution notice:

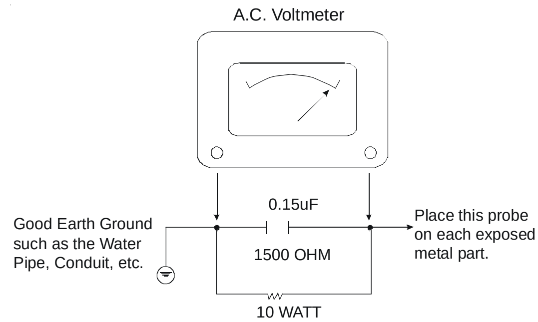
CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ALL FUSES WITH THE SAME TYPE AND RATING AS MARKED NEAR EACH FUSE.

SERVICE INFORMATION

While servicing, use an isolation transformer for protection from AC line shock. After the original service problem has been corrected, make a check of the following:

FIRE AND SHOCK HAZARD

1. Be sure that all components are positioned to avoid a possibility of adjacent component shorts. This is especially important on items transported to and from the repair shop.
2. Verify that all protective devices such as insulators, barriers, covers, shields, strain reliefs, power supply cords, and other hardware have been reinstalled per the original design. Be sure that the safety purpose of the polarized line plug has not been defeated.
3. Soldering must be inspected to discover possible cold solder joints, solder splashes, or sharp solder points. Be certain to remove all loose foreign particles.
4. Check for physical evidence of damage or deterioration to parts and components, for frayed leads or damaged insulation (including the AC cord), and replace if necessary.
5. No lead or component should touch a receiving tube or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces must be avoided.
6. After re-assembly of the set, always perform an AC leakage test on all exposed metallic parts of the cabinet (the channel selector knobs, antenna terminals, handle and screws) to be sure that set is safe to operate without danger of electrical shock. DO NOT USE A LINE ISOLATION TRANSFORMER DURING THIS TEST. Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner: Connect a 1500 ohm, 10 watt resistor, paralleled by .15 mfd 150V AC type capacitor between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and .15mfd capacitor. Reverse the AC plug by using a non-polarized adaptor and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.75 volts RMS. This corresponds to 0.5 milliamp AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



X-RADIATION

1. Be sure procedures and instructions to all service personnel cover the subject of x-radiation. The only potential source of x-rays in current TV receivers is the picture tube. However, this tube does not emit x-rays when the HV is at the factory-specified level. The proper value is given in the applicable schematic. Operation at higher voltages may cause a failure of the picture tube or high-voltage supply and, under certain circumstances may produce radiation in excess of desirable levels.
2. Only factory-specified CRT anode connectors must be used.
3. It is essential that the service personnel have available an accurate and reliable high-voltage meter.
4. When the high-voltage circuitry is operating properly, there is no possibility of an x-radiation problem. Every time a color chassis is serviced, the brightness should be run up and down while monitoring the high voltage with a meter, to be certain that the high voltage does not exceed the specified value and that it is regulating correctly.
5. When troubleshooting and making test measurements in a product with a problem of excessively high voltage, avoid being unnecessarily close to the picture tube and the high voltage power supply. Do not operate the product longer than necessary to locate the cause of excessive voltage.
6. Refer to HV, B+, and shutdown adjustment procedures described in the appropriate schematics and diagrams (where used).

IMPLOSION

1. All direct view picture tubes are equipped with an integral implosion protection system; take care to avoid damage during installation.
2. Use only the recommended factory replacement tubes.

TIPS ON PROPER INSTALLATION

1. Never install any receiver in a closed-in recess, cubbyhole, or closely fitting shelf space over, or close to, a heat duct, or in the path of heated air flow.
2. Avoid conditions of high humidity such as: outdoor patio installations where dew is a factor, near steam radiators where steam leakage is a factor, etc.
3. Avoid placement where draperies may obstruct venting. The customer should also avoid the use of decorative scarves or other coverings that might obstruct ventilation.
4. Wall- and shelf-mounted installations using a commercial mounting kit must follow the factory-approved mounting instructions. A product mounted to a shelf or platform must retain its original feet (or the equivalent thickness in spacers) to provide adequate airflow across the bottom. Bolts or screws used for fasteners must not touch any parts or wiring. Perform leakage tests on customized installations.
5. Caution customers against mounting a product on a sloping shelf or in a tilted position, unless the receiver is properly secured.
6. A product on a roll-about cart should be stable in its mounting to the cart. Caution the customer on the hazards of trying to roll a cart with small casters across thresholds or deep pile carpets.
7. Caution customers against using a cart or stand that has not been listed by Underwriters Laboratories, Inc. for use with its specific model of television receiver or generically approved for use with TVs of the same or larger screen size.
8. Caution customers against using extension cords. Explain that a forest of extensions, sprouting from a single outlet, can lead to disastrous consequences to home and family.

X-RADIATION

To prevent possible exposure to X-Radiation caused by excessive CPT anode voltage, The Digital FCS chassis incorporate a ¨High Voltage Shutdown¨ circuit. This circuit senses the level of a Shutdown pulse from the ¨Flyback Transformer¨ representative of the actual high voltage on the CPT anode. When this level exceeds a predetermined voltage, the circuit shuts down the horizontal drive, preventing further generation of anode voltage. In this condition, the horizontal drive is latched off.

SHUTDOWN CIRCUIT OPERATION

The shutdown pulse voltage from pin 9 of TX3201 (Fly-Back Transformer) is peak detected (rectified) by the action of diode D3205 and capacitor C3218. This form a DC voltage appearing on C3218 representative of the CPT anode voltage (HV) produced by TX3201. This DC voltage is divided down by the voltage divider series circuit of precision resistors R3001 (with in parallel provision for R3002) and R3003 (also with in parallel provision for R3004). This divider output voltage appears on Emitter of Q3000. In the event that the CPT anode voltage becomes excessive, the voltage in Emitter of Q3000 will be higher than the voltage in the Base of Q3000 (5.1V Base voltage is fixed by ZD3003) and therefore Q3000 enters in conduction mode. Therefore a DC voltage will appear on R3005 and this voltage will put D3000 in conduction. The D3000 cathode voltage level (close to 5V, a ¨logical high¨) is sent to pin 34 (HPROT input) of video processor ICM2200 stopping the Horizontal Drive Output (H-DRV pin 40) pulse train therefore shutting down to Horizontal Output Fly-Back transformer. switching off the HV and horizontal deflection. If the shutdown condition disappears, the TV set can be turned-on only if the AC is interrupted for about 20 Seconds and then the on/off switch is activated.

CPT ANODE HIGH VOLTAGE MEASUREMENT PROCEDURE

Each CPT screen size has it´s own safe operating anode and shutdown voltage. Critical safety component (designated with and ´X´ in the component designator) are designed to operate the CPT at a safe operating anode voltage and provide proper shutdown thresholds. If replacement of any of these components is deemed necessary, it is important to use original type LGERS components. After replacement is made, confirm proper anode voltage using the following procedure.

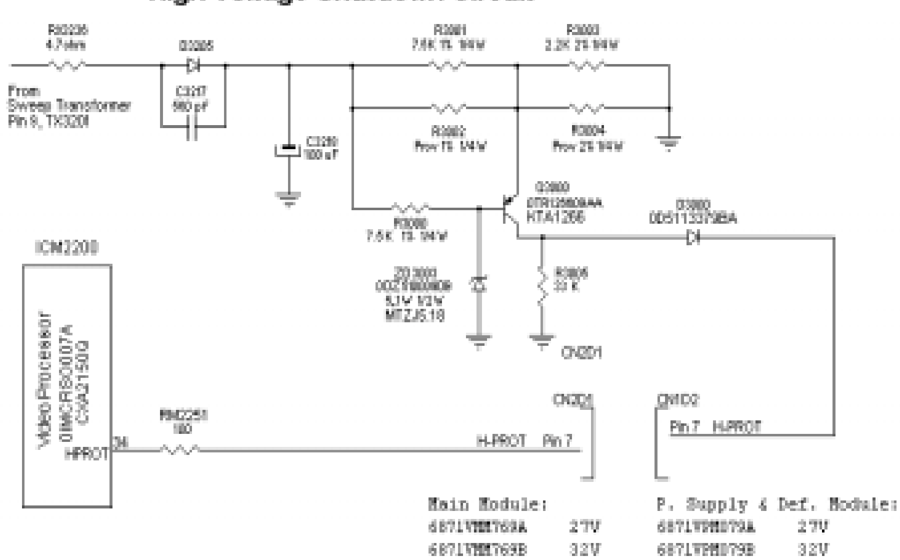
Measurement of the CPT anode voltage must be performed using a high impedance-high voltage meter, with no raster on the screen, and operating at nominal horizontal frequency 37.9 kHz. (This TV internally up-converts the video signal horizontal frequency from the 15,734 Hz of NTSC to 37.9 kHz of SVGA for displaying).

After discharging the CPT, connect a high impedance-high voltage meter to the CPT anode. Turn the television ón´ and confirm a good signal is being displayed. Reduce Brightness and Contrast settings until the picture is well extinguished.

Observe the anode voltage meter reading and compare with the table below fro the proper CPT screen size. If the voltage reading is higher than the maximum, verify circuit component values and proper operation.

CRT Anode Voltage			
CRT Screen Size	Nominal Anode Voltage (KV)	Min. Shutdown Voltage (KV)	Max. Shutdown Voltage (KV)
27”	30 ± 1.0	Nominal HV + 2	36
32”	30 ± 1.0	Nominal HV + 2	36

High Voltage Shutdown Circuit



INSTALLER MENU

Use the Installer Menu to set up or change operational settings. See descriptions of the Installer items on the following pages.

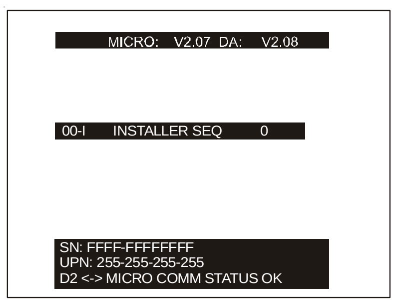
ACCESSING THE INSTALLER'S MENU

Installer's menu items can be accessed by using the optional LP702 installer's remote control. Just press and hold MENU (about 8 seconds) until the display changes, then press 9, 8, 7, 6, then ENTER. To exit the Installer's Menu, press ENTER again. *Any* changes you make will be stored in nonvolatile memory.

The Installer's menu opens with item 0-I, INST. SEQ. Use the SELECT key to sequence through the available menu items. Or, access an item directly by entering the item number, then pressing MENU. For example, to access the Sleep Timer option which is item 15-I, press 1, 5, then MENU. To change a setting use the Left/ Right ADJ keys.

USING THE INSTALLER'S MENU

Using the Installer's Menu Items 0-I - 89-I are accessible only in the Installer's Menu. Their numbers, descriptions, ranges, factory default settings, and a place for listing any changes made onsite are given below and on the following pages. The Factory Menu that is intended for qualified service technicians only, is not shown (XX-F items). Normally Factory menu items do not require adjustment.



Typical Installers Menu

Detailed Descriptions of Installer Menu Items

0-I. INSTALLER SEQUENCE Gives access to Installer Menu depending on the code selected.

0 = 9876 1 = 4321

2 = 1478 3 = 3698

1-I. POWER MANAGE (Power Management)

Determines hours of no activity before automatic shutoff. The POWER MANAGE function is for saving energy. When set to 0, Power Manage is OFF. Settings range from 0 - 7, with 1 - 7 representing the hours that the TV will remain on, unless there has been activity from the front control panel or remote control.

2-I. AC ON (AC Power Switchable)

Allows the TV to turn ON just by applying AC power. Pressing the POWER button is not necessary. This is desirable when the TV is plugged into a cable box or a power outlet controlled by a wall switch. Use ADJUST to select 0 or 1, where 0 is the default is OFF, and 1 is ON.

NOTE: When set to 1 (ON), the TV does not respond to POWER On/Off commands from either the remote or the TV front control panel, and the SLEEP TIMER is also nonfunctional.

3-I. BAND/AFC (Band/Automatic Frequency Control)

There are 8 possible settings for this option:

0 = Broadcast Fixed 4 = Broadcast AFC

5 = CATV Fixed 1 = CATV AFC

6 = HRC Fixed 2 = HRC AFC

7 = ICC Fixed 3 = ICC AFC

Channels are accessed faster when fixed modes are used. The AFC (search modes) should only be used when some channels are not on nominal frequencies.

NOTE: BAND is automatically set by AUTO PROGRAM. If some channels were not found by AUTO PROGRAM, select the appropriate AFC setting here and add the channels using the ADD/DEL option in the Setup Menu.

4-I. STRT CHANNEL (Start Channel)

When active, this function allows you to determine the initial channel number when the TV is turned ON. This feature is useful for an in-house information channel, since the TV would always select that channel when it is turned on. Setting this to 255 causes the last channel viewed when TV was turned off to be the tuned to channel when the TV is turned on again.

The range of values is 0 - 255. Use ADJ (adjust) keys to choose numbers that determine the start channel.

5-I. CHAN LOCK (Channel Lock)

CHAN LOCK is ideal if a cable box (or similar) is the sole source for programming—and the TV must always be on the same channel. Changing channels with Channel Up/Down or keypad numbers is impossible. Channel Lock is inactive when set to 0 (default).

Generally, this feature is used in conjunction with START CHANNEL (item 4-I.) where the start channel may, for example, be set to 3 or 4. If the start channel is 3, then the TV will remain on channel 3. then the TV will remain on channel 3. NOTE: When CHANNEL LOCK is active and is active and CHANNEL OVERIDE is disabled, AUTO PROGRAM is not functional.

6-I. GHOST CH (Ghost Channel)

When set to 1, the current channel number is displayed in the upper right corner of the CRT. The number moves slightly to prevent damage to the screen. The default is "0" or OFF. NOTE: When captions are on, "Ghost Channel" is not displayed.

INSTALLER MENU

7-I. START VOLUME

This function allows the Installer to determine the initial volume select that volume level when it is turned on. The range of values are 0 - 63, 255. If 255 is selected, the current volume level will be retained in memory when the TV is turned off; at TV turn on, volume level is automatically set to the previous or last level.

8-I. MIN VOLUME (Minimum Volume)

This function determines the minimum volume level allowable with the VOLUME (VOL) Up/Down control. In this way, for example, someone cannot set the sound too low to hear. The range is from 0 to 63—change values with ADJ (adjust). The factory default is 0, which provides full range of volume control. It may be best to set the same value on every TV.

NOTE: The minimum volume level cannot have a value setting higher than in the MAX VOLUME level (described below).

9-I. MAX VOLUME (Maximum Volume)

This function determines the maximum volume level allowable with the VOLUME Up/Down control. In this way, for example, someone cannot set the sound level high enough to disturb others.

The range is 0 to 63, with 63 as the default which gives the user the full range of volume control. Change values with ADJUST keys. It may be best to set the same value on every TV.

NOTE: The maximum volume level cannot have a value setting lower than the MIN VOLUME level (described above).

10-I. MUTE DISABLE

Enables or disables sound mute function. If set to 1, sound cannot be muted. If set to 0, sound can be muted.

11-I. KEY DEFEAT (Keyboard Defeat)

When set to 1, it prevents the end user from accessing screen menus with the front panel—MENU, SELECT, and ADJUST do not function. When set to 0, those keys are functional. The menus can always be accessed with MENU on the remote.

12-I. NOT USED

13-I. NOT USED

14-I. NOT USED

15-I. SLEEP TIMER

When set to 1, the Sleep Timer feature is available to the user (but no message is displayed prior to turn-off). When set to 0, the Sleep Timer is not functional.

16-I. EN. TIMER (Enable Timer)

Set to 1, On/Off Timer functions are available to user. Set to 0 to disable On/Off Timer functions.

Note: Clock must be set in order to use Timers.

17-I. ALARM

Gives you the option of making the alarm function available to the user. Set to 1, Alarm function is available to user. Set to 0 to disable the Alarm function.

Note: Clock must be set in order to set the Alarm.

18-I. NOT USED

19-I. NOT USED

20-I. FEATURE LEVEL

Default set to ZEN 1 for Zenith IR remote control operation. Set O, P LBL for Zenith Private Label IR remote control operation.

Warning: Note: Installer should leave Item 20-I FEATURE LEVEL set to 1 (default). Do not set to "0" or remote will not control TV.

21-I. V-CHIP

Set to 1 to activate V-Chip (Parental Control); have it available to user to filter or control and restrict viewable program content. Set to 0 to turn V-Chip feature off, not available to user; no programming restrictions can be set.

22-I. MAX BLK HRS (Maximum Blocking Hours)

Set 0 to 99 for the maximum V-Chip (Parental Control) block hours. Default setup is 12 blocking hours.

23-I. CAPTION LOCK

Set to 1 to restore previous Caption On/Off state after TV turns off. When set to 0, Captions are always off, when TV is initially turned on.

24-I. TEXT MODE

Determines whether TEXT 1, TEXT 2, TEXT 3, or TEXT 4 decoding is enabled when TEXT is turned on (either from the Setup Menu or directly with CC on the remote).

TIP: Set Text Mode to 1 only if text is offered in your video system.

25-I. FUNCTION PRE. (Function Preview)

Set to 0 to suppress CHANNEL PREVIEW from the FUNCTION menu with some Pay-Per-View systems.

26-I. NOT USED

27-I. NOT USED

28-I. CH. OVERRIDE (Channel Override)

When set to 1, the user can select channels with either CHANNEL Up/Down or by direct keypad entry. When set to 0, only those channels that are entered for scanning may be selected by direct keypad entry.

Note: If set to 0, Auto program is locked; (as shown on Setup menu) channel search is not available.

29-I. OLD OCV (On Command VideoTM)

Set to 1 for operation with systems from On Command Corporation.

30-I. ACK MASK

M.P.I. Communication Parameter. Leave at default setting unless changed by Pay-Per-View provider.

31-I. POLL RATE

M.P.I. Communication Parameter. Leave at default setting unless changed by Pay-Per-View provider.

32-I. TIMING PULSE

M.P.I. Communication Parameter. Leave at default setting unless changed by Pay-Per-View provider.

33-I. NOT USED

34-I. CAMPORT ENABLE

Set to 1 to enable the front AUX (Camport) input.
Set to 0 to disable front AUX input.

35-I. NOT USED

36-I. NOT USED

37-I. REAR Y/C EN. (Rear S-Video Enable)

Set to 1 to enable the rear S-Video input.
Set to 0 to disable the rear S-Video input.

38-I. NOT USED

39-I. NOT USED

40-I. AUTO CAMPORT

Set to 1 to automatically switch to Camport when equipment is connected to front Video input.
Set to 0 to disable front Video automatic source selection.

41-I. AUTO COMPORT

Set to 1 to automatically switch to Comport when equipment is connected to front computer input.
Set to 0 to disable front computer automatic source selection.

42-I. NOT USED

43-I. NOT USED

44-I. NOT USED

45-I. NOT USED

46-I. STRT AUX SRCE (Starting Aux Source)

Sets the starting AUX source.

47-I. AUX STATUS

Set to 1 for M.P.I. AUX source to be reported as a channel number instead of channel 0. Set to 0 to disable AUX identification change.

48-I. DIS. SETUP M. (Disable Setup Menu)

Set to 1 to disable the Setup menu. Setup menu will not appear. Set to 0 to enable the Setup menu.

49-I. DIS. AUDIO M. (Disable Audio Menu)

Set to 1 to disable the Audio menu. Audio menu will not appear. Set to 0 to enable the Audio menu.

50-I. DIS. VIDEO M. (Disable Video Menu)

Set to 1 to disable the Video menu. Video menu will not appear. Set to 0 to enable the Video menu.

51-I. DIS. VCHIP M. (Disable Parental Control Menu)

Set to 1 to disable V-Chip menu. V-Chip menu will not appear. Set to 0 to enable the V-Chip menu.

52-I. DIS. SOURCE M (Disable Source Menu)

Set to 1 to disable Source menu. Source menu will not appear. Set to 0 to enable the Source menu.

53-I. DIS. CH-TIME (Disable Channel-Time Display)

Set to 1 to disable the Channel-Time display. Channel-Time display will not appear. Set to 0 to enable the Channel-Time display.

54-I. EN. SET. COL. (Enable Setup Menu Custom Color)

Set to 1 to enable custom color settings for the Setup menu. Set to 0 to disable custom color settings for the Setup menu.

55-I. FOR. SETUP M. (Setup Menu Foreground Color)

Set according to Color Chart.

0 = Black	3 = Yellow	6 = Cyan
1 = Red	4 = Blue	7 = White
2 = Green	5 = Violet	

56-I. BCK. SETUP M. (Setup Menu Background Color)

Set according to Color Chart.

0 = Black	3 = Yellow	6 = Cyan
1 = Red	4 = Blue	7 = White
2 = Green	5 = Violet	

57-I. EN. AUDIO. COL. (Enable Audio Menu Custom Color)

Set to 1 to enable custom color settings for the Audio menu. Set to 0 to disable custom color settings for the Audio menu.

INSTALLER MENU

58-I. FOR. AUDIO. COL. (Audio Menu Foreground Color)
Set according to Color Chart.

0 = Black	3 = Yellow	6 = Cyan
1 = Red	4 = Blue	7 = White
2 = Green	5 = Violet	

59-I. BCK. AUDIO. COL. (Audio Menu Background Color)
Set according to Color Chart.

0 = Black	3 = Yellow	6 = Cyan
1 = Red	4 = Blue	7 = White
2 = Green	5 = Violet	

60-I. EN. VIDEO. COL. (Enable Video Menu Custom Color)
Set to 1 to enable custom color settings for the Video menu. Set to 0 to disable custom color settings for the Video menu.

61-I. FOR. VIDEO M. (Video Menu Foreground Color)
Set according to Color Chart.

0 = Black	3 = Yellow	6 = Cyan
1 = Red	4 = Blue	7 = White
2 = Green	5 = Violet	

62-I. BCK. VIDEO. COL. (Video Menu Background Color)
Set according to Color Chart.

0 = Black	3 = Yellow	6 = Cyan
1 = Red	4 = Blue	7 = White
2 = Green	5 = Violet	

63-I. EN. PTL. COL. (Enable Parental Menu Custom Color)
Set to 1 to enable custom color settings for the V-Chip menu. Set to 0 to disable custom color settings for the V-Chip menu.

64-I. FOR. PTL. M. (V-Chip Menu Foreground Color)
Set according to Color Chart.

0 = Black	3 = Yellow	6 = Cyan
1 = Red	4 = Blue	7 = White
2 = Green	5 = Violet	

65-I. BCK. PTL. M. (V-Chip Menu Background Color)
Set according to Color Chart.

0 = Black	3 = Yellow	6 = Cyan
1 = Red	4 = Blue	7 = White
2 = Green	5 = Violet	

66-I. EN. SRC. COL. (Enable Source Menu Custom Color)
Set to 1 to enable custom color for the Source menu.
Set to 0 to disable custom color for the Source menu.

67-I. FOR. SRC. M. (Source Menu Foreground Color)
Set according to Color Chart.

0 = Black	3 = Yellow	6 = Cyan
1 = Red	4 = Blue	7 = White
2 = Green	5 = Violet	

68-I. BCK. SRC. M. (Source Menu Background Color)
Set according to Color Chart.

0 = Black	3 = Yellow	6 = Cyan
1 = Red	4 = Blue	7 = White
2 = Green	5 = Violet.	

69-I. EN. CH-T COL (Enable Channel-Time Custom Color)
Set to 1 to enable custom color for the Channel-Time display. Set to 0 to disable custom color for the Channel-Time display.

70-I. FOR. CH-T COL (Channel-Time Display Foreground Color) Set according to Color Chart.

0 = Black	3 = Yellow	6 = Cyan
1 = Red	4 = Blue	7 = White
2 = Green	5 = Violet	

Note: If foreground and background color are the same, menu background is transparent.

71-I. BCK. CH-T COL (Channel-Time Background Color)
Set according to Color Chart.

0 = Black	3 = Yellow	6 = Cyan
1 = Red	4 = Blue	7 = White
2 = Green	5 = Violet	

Note: If foreground and background color are the same, menu background is transparent.

72-I. NOT USED

73-I. CH NOT AVBLE (Channel Not Available)
If set to 1 and channel override is set to 0, “NOT AVAILABLE” message is displayed when direct accessing a channel not in the favorite channel list.

74-I. CH-TIME SIZE (Channel-Time Size)
If set to 1 and transparent background is selected for Channel- Time display, (foreground color = background color and custom color enabled) a large channel number is displayed instead of the normal Channel-Time display.

75-I. NOT USED

76-I. DEFEAT XDS
Set to 1 to disable XDS display. Even if provided by broadcaster, XDS display will not appear. Set to 0 to enable XDS display. If provided by broadcaster, XDS display will appear after new channel selection.

77-I. NOT USED

78-I. UPN MSB
User programmable number, most significant byte readable by M.P.I. command. (Line - Day)

79-I. UPN MSB-1
User programmable number, most significant byte-1 readable by M.P.I. command. (Week)

80-I. UPN MSB-2
User programmable number, most significant byte-2 readable by M.P.I. command. (SN-HIGH)

81-I. UPN LSB
User programmable number, least significant byte readable by M.P.I. command. (SN-LOW)

82-I. CHKSM ERROR
Enforces rigid M.P.I checksum validation.
Set to 1 for validation.
Set to 0 to turn off.

83-I. HANDSHK TIME (Handshake Time)
Adds an additional delay to the handshake time which is 64 msec, thus relaxing M.P.I. timing requirements to be compatible with PC based Windows controlled systems, range is 0 - 5.
Set to 0 to retain standard 64 msec delay. Set to 1 - 5 to increase @ 16 msec ea., the delay up to 144 msec.

84-I. PERMANENT BLK (Permanent Block)
Allows Parental Control blocking schemes to be permanent by removing the blocking hours function.
Set to 1 to install Parental Control blocking restrictions permanently. Set to 0 for user-specified hours control of blocking schemes.

85-I. A. MUTE TIME (Audio Mute Time)
Controls audio muting delay time when switching between AUX sources. Range is 0 to 254 msec.

86-I. V. MUTE TIME (Video Mute Time)
Controls video muting delay time when switching between AUX sources. Range is 0 to 254 msec.

87-I. NOT USED

88-I. EN NOISE MUTE (Enable Noise Mute)
Enables soft mute when a signal is not present.

89-I. POKE ENABLE
Enables poke function through M.P.I. commands.

90-I. NOT USED

91-I. NOT USED

92-I. NOT USED

93-I. NOT USED

94-I. NOT USED

95-I. NOT USED

96-I. NOT USED

97-I. NOT USED

98-I. NOT USED

99-I. NOT USED

100-I. NOT USED

101-I. NOT USED

102-I. NOT USED

103-I. NOT USED

104-I. NOT USED

105-I. NOT USED

106-I. A RATIO LOCK (Aspect Ratio Lock)
If set to 1, current picture aspect ratio is retained at power Off. At power On, previous aspect ratio will be used. If set to 0, resets aspect ratio to default setting at TV turn On.

FACTORY MENU

ACCESSING THE FACTORY'S MENU
Using the remote control or the keyboard on the front panel can access the Factory's Menu items. With the remote, just press and hold MENU (about 8 seconds) until the display changes, then press 1, 9, 3, 7, then ENTER. To exit the Factory's Menu, press ENTER again. Any changes you make will be stored in nonvolatile memory. To access the Factory Menu with the set's keyboard press and hold the MENU key until the Ch/Time display appears, simultaneously press the ADJUST RIGHT & CHANNEL UP keys.

USING THE FACTORY MENU
The Factory Menu has two pages, the Factory Menu 1 and the Factory Menu 2. The Factory Menu 1 is to control or modify the main characteristics of the CV RF, CV base band and Y/C signals. The Factory Menu 2 is to control or modify the main characteristics of the NTSC YUV and RGB Computer input signals. Their numbers, descriptions, ranges, factory default settings, and a place for listing any changes made onsite are given below and on the following pages.

The Factory's menu opens with item 003-F VERT POS item. Use the SELECT key to sequence through the available menu items, or access an item directly by entering the item number, and then pressing MENU. For example, to access the item 015-F, press 1, 5, then MENU. To change the settings use the Left/Right ADJ keys.

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DETAILED DESCRIPTIONS OF FACTORY MENU ITEMS

000-F FACT MENU: Use the Select key to select item #00, which is the first item in the Factory's Menu. The Factory Mode item should always be left off (Zero is off). When The Factory Mode is on, the Factory Menu line appears at the top of the screen to allow for proper setting of the video.

When the Factory Mode is turned off, all TV functions are returned to normal. The dashes on the menus are removed indicating that the Factory Mode is off. There are 4 ways to turn off the Factory Mode:

1. Change Factory's Menu Item "00 F Mode" to 0.
2. Run Auto Program.
3. Use the Clock Set feature to set the time.
4. Use Factory off IR code.

Notes:

• When the Factory Mode is on, the TV set will automatically turn on when AC power is applied. *The POWER key will not turn the set* off. The only way to turn off the set is by removing the *AC power.*

• Settings Displayed in Customer Menus: When adjusting a bar graph setting in the Video and Audio Menus, a number is displayed showing the actual numeric value stored in EEPROM for that setting. On menu items without a bar graph setting, two dashes indicate that the Factory Mode is on. • Video Preference Settings Inhibited: In the Video Menu, the Custom Video Preference settings are inhibited while the Factory Mode is on and will NOT be stored in EEPROM. (This allows the factory *to* temporarily change the settings and not store them permanently.)

001-F PRESET PX: Used to store the customer menu adjustments in the nonvolatile memory of the EAROM. Settings for Contrast, Brightness, Color and Tint are stored in this manner. 0 is Custom and 1 is Preset.

002-F PRESET AX: Saves your custom audio settings (Bass, table, balance, audio mode, soundrite, front surr, speaker) in nonvolatile memory (not affected by power loss). Memory status is indicated by a 1 for "custom settings already stored", or 0 for "custom settings have not been stored."

003-F VERT POS: Moves Captions and displays vertically on the screen. Use the ADJUST keys.

004-F HORZ POS: Moves Captions and displays horizontally on the screen. Use the ADJUST keys. G2 ADJUSTMENT.

005-F AIR AFT: Enable/Disable (1/0). This feature is for enable or disable the AFT execution in AIR Band.

006-F G2 ADJUST: Max value of 254d and default value of 127d. It is required to adjust the cutoff level when the horizontal line becomes visible at center of screen during G2 adjustment.

007-F RF SUB_BRIGHT: Max value of 63d and default value of 31d for NTSC video format Depends of factory adjustment.

008-F RF WHITE ADJ: Max value of 63d and default value of 25d for 27" and 28d for 32". It is required as test condition to reduce the contrast level during RF sub brightness adjustment.

009-F RF BLACK ADJ: Max value of 63d and default value of 63d for 27" and 60d for 32". It is required as test condition to increase the black level during the RF sub brightness adjustment.

AUDIO OPTIONS

010-F VOL CLIPPING: Reduce clipping effects due the gain combination of volume, bass and treble settings. Range: 0-3. Fixed value = 0 (Reduce volume when gain combination > 12dB).

011-F SPAT STRENGHT: Spatial effect strength. Fixed value = 63 (enlargement = 50%).

012-F SPAT MODE: Define the spatial effect mode. Fixed value = 0 (Stereo Base width Enlargement and Pseudo Stereo Effect).

013-F SPAT GAIN: Spatial effect high-pass gains. Fixed value = 2 (2/3 high-pass gain).

014-F PRE AUX_INPUT: Defines the input gain value for auxiliary input signals. Fixed value = 25 (0 dB gain).

015-F PRE AUD_DEMOD: Defines the input prescale gain for the demodulated audio signal. Fixed value = 24.

016-F AVC: Automatic volume correction decay time. Fixed value = 4.

NTSC: IC CXA2150

017-F SUBCONT Sub contrast adjustment. Range: 0- 15, 0 = Minimum, 15 = Maximum. Contrast gain control (Y system level adjustment). Range: 0-15, 0H = -1.9 dB, 7H = 0 dB, FH = +1.7 dB.

018-F SUBBRIGHT Sub-brightness control. Range 0- 63, settings for output DC bias out RGB OUT. OH=-13IRE, 1Fh=CENTER, 3Fh=+13IRE.

019-F RDRIVE R channel drive gain control. Range: 0- 63, 0H = -4.2 dB, 29H = 0 dB, 3FH = +2.1 dB. Fixed value.

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020-F GDRIVE G channel drive gain control. Range: 0- 63, 0H = -4.2 dB, 29H = 0 dB, 3FH = +2.1 dB. Fixed value.

021-F BDRIVE B channel drive gain control. Range: 0- 63, 0H = -4.2 dB, 29H = 0 dB, 3FH = +2.1 dB. Fixed value.

022-F RCUTOFF R channel cutoff control Range: 0-63, 0H = -9.1dB, 1FH = 0 dB, 3FH = +4.4 dB. Fixed value.

023-F GCUTOFF G channel cutoff control Range: 0-63, 0H = -9.1dB, 1FH = 0 dB, 3FH = +4.4 dB. Fixed value.

024-F BCUTOFF B channel cutoff control Range: 0-63, 0H = -9.1dB, 1FH = 0 dB, 3FH = +4.4 dB. Fixed value.

025-F BLKBTM RGB-OUT bottom limiter level control (valid when BLKSW = 1). The limiter level is replaced with the reference DC for each H in RGB system, and the drop voltage from that DC defines it; it is not dependent on DC level control setting made by BRIGHT, etc. This limiter functions for all video signals. For further details, refer to the description of operation. Range: 0-3.

026-F PICTURE: Picture gain control. Range: 0-63.

027-F BRIGHTNESS: Brightness level range: 0-63.

028-F GAMMA Control of gamma correction amount. 0H = OFF. 3H = MAX.

029-F DCOL: Dynamic color mode setting. Range: 0 = OFF, 1 = ON, R:98%, G:100%, B:102.5%.

030-F PLIMITLEV: Setting of level detection DC at RGBOUT of PEAK-ABL. 0 = 115IRE.

031-F WBSW: White balance offset setting. 0=off, normal color temperature.

032-F CTILEV AUX: Chrominance transient improvement for Aux video input.

033-F CTIMODE AUX: Chrominance transient mode for Aux video input.

034-F COLAXIS: Color detection axis setting. 0= for NTSC.

035-F GAMMAL: Fine tuning for gamma.

036-F LTILEV AUX: Luminance signal edge enhancement setting for Aux video inputs. Range: 0-3, 0 = OFF, 1 = Low, 2 = Medium, 3 = High.

037-F LTIMODE AUX: Luminance transient improvement for aux video inputs. Default value in 1.

038-F SYSTEM AUX: Signal frequency band switching; select the band in accordance with the TV System. Range: 0- 3, 0 = NORMAL, 1 = FF, 2 = HD, 3 = FIX-HD (setting which gives greater importance to frequency response than 2).

039-F DCTRAN: Y system DC transmission ratio setting. Range: 0-3, 2 = 90%.

040-F YOFFSET: DC offset canceling for y signal. Default value is 7.

041-F DPICLEV: Dynamic picture (black expansion) control. Range: 0-3, 0 = OFF, 1 = Low: inflection point 25 IRE, 2 = Medium: inflection point 30 IRE, 3 = High: inflection point 35 IRE.

042-F LRGB2LEV: LRGB2 system picture level control. Range: 0-15, 0H = -8 dB, Fh = 0 dB.

043-F ABLMODE: Switch for ABL mode. Range: 0-3, 0 = Picture ABL only mode, 1 = Picture/brightness ABL mode: Low, 2 = Picture/brightness ABL mode: Medium, 3 = Picture/brightness ABL mode: High.

044-F ABLTH: Adjustment of threshold voltage for ABLIN (Pin 44) input. Range 0-15. Default value is 2.

045-F PABL: RGB output level detection DC setting for peak ABL. Default value is 15d.

046-F CBOFFSET: For canceling the offset between CrCb of IN1 and SELIN systems. Range: 0-63. This variable range is DC variation amount of respective input pins.

047-F CROFFSET: For canceling the offset between CrCb of IN1 and SELIN systems. Range: 0-63. This variable range is DC variation amount of respective input pins.

048-F AKBTIM: AKB Blue channel reference pulse timing setting. Default value is 18d.

049-F VMLEV: Not available.

050-F CDOFF: Sharpness CD ON/OFF. Default value is 1 (off).

051-F SHPCD: Sharpness gain control in part of high color saturation when Cr input signal is 100% Default value is 3.

052-F VM-COR: Not available.

053-F VMF0: Not available.

054-F SHPF0: Sharpness fo setting. 3= 3Mhz @ Normal mode

055-F BLKOFF: Blanking ON/OFF SW when AKBOFF=1 Default value is 0.

056-F CLPPHASE: Internal clamp phase pulse control. Default value is 0 (+5%).

057-F CLPSHIFT: Internal clamp pulse start phase setting 1= Clamp phase setting –3.125%

058-F CLPGATE: Switch for gating internal clamp pulse with input Hsync. 1=gated with inHsync.

059-F LEFTBLK

060-F RIGHTBLK

061-F HBLKSW: HBLK control enable for 4:3 software full display mode on a 16:9 CRT. Default value is 1.

062-F SABL: S-ABL gain setting. 3=S-ABL gain max.

063-F SHPF1: High fo sharpness gain control. Default value is 2.

064-F PREOVER Sharpness preshoot/overshoot ratio setting. Range: 0-3, 0 = 1:1.5 (pre:over), 3 = 2:1 (pre:over). Default value is 0.

065-F VMLMT:

066-F VMDLY:

067-F AKBOFF:

068-F UPBLK

069-F LOBLK

070-F AFC_BOW: Vertical line bow adjustment. Range: 0-63, Initial value: 31.

071-F AFC_ANGLE: Vertical line slope adjustment. Range: 0-63, Initial value: 31.

072-F V_ASPECT: Aspect control ratio. Range: 0-63, Fixed Value: 47 for 4:3 CRT.

073-F V_SIZE: Vertical amplitude adjustment. Range: 0-63, Initial value: 50.

074-F V_POSITION: Vertical position adjustment. Range: 0-63, Initial value: 31.

075-F V_SCROLL: Vertical picture scroll control. Range: 0-63, Initial value: 28.

076-F V_LIN: Vertical linearity adjustment. Range: 0- 15, Initial value: 07.

077-F V_S_CORRECTION: Vertical S correction. Range: 0-15, Initial value: 5.

078-F UP_VLIN: Vertical linearity control. Range: 0- 15, Initial value: 0.

079-F LO_VLIN: Vertical linearity control. Range: 0- 15, Initial value: 0.

080-F H_SIZE: Horizontal amplitude adjustment. Range: 0-63, Initial value: 43.

081-F H_POSITION: Horizontal position adjustment. Range: 0-63, Initial value: 31.

082-F PIN_PHASE: Horizontal trapezoidal adjustment. Range: 0-63, Initial value: 31.

083-F PIN_AMP: Pincushion adjustment. Range: 0-63, Initial value: 31.

084-F UP_CPIN: Horizontal pin adjustment for top edge. Range: 0-63, Initial value: 38.

085-F LO_CPIN: Horizontal pin adjustment for bottom edge. Range: 0-63, Initial value: 34.

086-F UP_UCP: Horizontal pin adjustment for extreme top edge. Range: 0-3, Initial value: 0.

087-F LO_UCP: Horizontal pin adjustment for extreme bottom edge. Range: 0-3, Initial value: 0.

088-F UP_UCG: Horizontal pin gain adjustment for extreme top edge. Range: 0-3, Initial value: 0.

089-F LO_UCG: Horizontal pin gain adjustment for extreme bottom edge. Range: 0-3, Initial value: 0.

090-F UC_POL: Horizontal pin polarity setting for extreme top & bottom edge. Range: 0-1, Initial value: 0.

091-F V_COMP: HV fluctuation compensation amount setting for vertical picture size. Range: 0-15, Initial value: 07.

092-F H_COMP: HV fluctuation compensation amount setting for horizontal picture size.
Range: 0-15, Initial value: 07.

093-F PIN_COMP: HV fluctuation compensation amount setting for horizontal pin distortion. Range: 0-7, Initial value: 0.

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094-F AFC_COMP: HV fluctuation compensation amount setting for H position. Range: 0-7, Initial value: 0.

095-F APC-MODE

096-F SYNC-PHASE

097-F RST-SW

NTSC: IC CXA2151

098-F HSMASK: Sets whether or not to add HSYNC within VSYNC at SELHOUT. 1= Do not add HSYNC.

099-F VTC: Sets the vertical sync separation time constant. 3=13us.

100-F HWIDTH: Sets the SELH OUT output pulse width. 2=1.7us.

101-F HFREQ: Select the frequency of the dummy sync output to SELHOUT. 1=31.25Khz.

NTSC: IC VSP9405

102-F HPOLM: Horizontal polarity in HINP. Default value is 2 (Auto detect polarity).

103-F COMBUSEM: Comb filter usage CD1.

104-F CRCBM: Choice of UV or Cb Cr output. 2=modified Cr Cb color space.

105-F YCSELM: Y/C select among composite video and s-video inputs.

106-F NOSIGBM: No signal behavior. 0=noisy screen when out of sync.

107-F CLMPST1M: Measure pulse start for ADC1.

108-F CHRFM: Select Chroma bandwidth.

109-F PLLTCM: Time constant HPLL (VCR...TV) Default value in 0 (very fast).

110-F COMBM: Delay line. 1=Do not use delay line.

111-F CKILLM: Chroma level for Color off.

112-F YCDELM AUX: The between Y and C is well aligned and can also be adjusted in steps of 50 ns for Aux video inputs.

113-F NSREDM: Fine-tuning of the PLL time constant can be done.

114-F LPCDELM: Window shift for fine error calculation. Default value in 0 (no offset).

115-F HUEM: Tint control for NTSC signals.

116-F AGCMDM: AGC behavior can be chosen from four possible modes.

117-F AGCADJ1M: Automatic gain adjustment ADC1.

118-F CLMPST1SM: Measure pulse duration for ADC1

119-F CLMPHIGHM: Vertical end of clamping pulse. Default value is 255 (Line 766).

120-F CLMPLOWM: Vertical start of clamping pulse. Default value is 3 (Line 6)

121-F VDETIFSM: Vertical sync detection slop, 0=Normal, 1=slow. Default value in 1.

122-F CLMPD1SM: Clamping pulse duration for ADC1

123-F ISHFTM: Adjustment for horizontal PLL.

124-F NOTCHOFFM: Luminance notch filter 0=enabled and 1=bypassed 053-F TNOTCHOFFM: Default value is 0.

125-F TNOTCHOFFM: Luminance notch-filter.

126-F NTCHSELM: Luminance notch selection. 3=broad notch.

127-F TRAPBLUM: Notch frequency for 4.250Mhz. 0=4.25Mhz.

128-F TRAPREDM: Notch frequency for 4.406Mhz. 0=4.406Mhz, 057-F COMBUSEM: Default value is 2

129-F PIXPLINM: Pixels per line slave channel. 0=defined by DISPMODE Y Pr Pb IC VSP9405.

130-F WRPOSXM: Horizontal position of master picture in the memory. 0=left border position.

131-F WRPOSYM: Vertical position of master picture in the memory. 0=Upper border position.

132-F FMSYN: Synchronization of film mode signal. 0=no delay.

133-F FMSYNUNS: Synchronization of film mode signal. 0=no delay.

134-F YUVMAT: YUV color matriz. 0= Y Cr Cb.

135-F TINT: Tint control for YUV input.

136-F RDPOSXM_L: Horizontal read position master.

137-F RDPOSXM_H: Default value is 0.

138-F READM: Read mode master channel. 0=Readings A and B fields.

139-F RDPOSYM: Vertical read position.

140-F RSHIFTM: Raster shift master. 1=Enable.

141-F NRONM: Temporal noise reduction. 1= Enabled.

142-F TNRNR4YM: Temporal noise reduction for Luma. 1= Enabled.

143-F TNRMD4YM: Motion detection of temporal noise reduction for Luma. 0=Frame based.

144-F TNRNR4CM: Motion detection of temporal noise reduction for Chroma. 0=Frame based.

145-F TNRCLYM: TNR luminance classification.

146-F TNRCLCM: TNR chrominance classification.

147-F VAAPRESCM: Vertical low pass filter (prescaler) 0=Disabled.

148-F VPKPRESCM: Vertical peaking. 15= Vertical peaking has no effect.

149-F VCRPRESCM: Shift of chrominance signal. 0=No shift.

150-F NALPFIPM: No active lines per field input.

151-F VPREBYPM: Vertical pre-scaler by pass. 0=enabled.

152-F DPBRT: Brightness level range from 0 to 63. Default is 3.

153-F DPCON: Contrast level range from 0 to 63. Default is 30.

154-F DPCNS: Contrast noise shaper. 0=disabled.

155-F HORPOSM_H: Default value is 0.

156-F HORPOSM_L: Horizontal position inside active picture area. Default value is 325.

157-F VERPOSM_H: Default value is 0.

158-F VERPOSM_L: Vertical position inside active picture area. Default value is 16.

159-F HORWIDTHM_H: Default value is 3.

160-F HORWIDTHM_L: Horizontal picture width. Default value is 32.

161-F VERWIDTHM_H: Default value is 1.

162-F VERWIDTHM_L: Vertical picture width. Default value is 31.

163-F PKCTIBPM AUX: Band pass Peaking factor for CTI of Aux video inputs. Default value is 3.

164-F PKCTIHPM AUX: High pass Peaking factor for CTI of Aux video inputs. Default value is 2.

165-F LTIM: Luminance transient improvements. 0=disabled.

166-F APK1BPM: 1st adaptive peaking factor (band pass part). Default value is 0.

167-F APK2BPM: 2nd adaptive peaking factor (band pass part). Default value is 4.

168-F ATH1BPM: Peaking denoising threshold (band pass part). 0=off.

169-F ATH2BPM: 2nd Peaking threshold (band pass part). 0=0.

170-F THEM: Turning point threshold. Default value is 3.

171-F APK1HPM_10: 1st adaptive peaking factor (high pass part). Default value is 0.

172-F APK2HPM: 2nd adaptive peaking factor (high pass part). Default value is 3.

173-F ATH1HPM: Peaking denoising threshold (high pass part). 0=off.

174-F ATH2HPM: 2nd Peaking threshold (high pass part). 0=0.

175-F APK1BPM_32: 1st adaptive peaking factor (band pass part). Default value is 0.

176-F APK1HPM_32: 1st adaptive peaking factor (high pass part). Default value is 0.

177-F CORONM: Coring or denoising for low amplitudes. Default value is 0 (coring off, denoising on).

178-F DCIONM: Digital contrast improvements. 1=enabled.

179-F AB_FTCM: Filter time constant for brightness average. Default value is 0.

180-F PK_FTCM: Filter time constant for frame peak value. Default value is 0.

181-F GCMON: Progressive picture improvement. 0=off.

182-F HSPPL: H sync shift. Default value is 0

183-F VSLPF: V sync shift. Default value is 0

184-F CVSEL1: Output select for CVBS2.

185-F CVSEL2: Output select for CVBS4 or Y.

186-F CLMPSIG1: Clamping signals ADC1. 0=1st color decoder.

187-F YCTOCOMB: YC to Comb filter. 0=Normal operation.

188-F VDG: Vertical difference gain. 1=medium2

189-F HDG: Horizontal difference gain. 2=medium2

190-F DDR: Diagonal dot reduction. 1=medium1

191-F COR: Vertical peaking coring. 0=disabled

192-F NOSEL: Notch filter select. 3=max peaked.

193-F DCR: Vertical peakigDC rejection filter. 0=disabled.

194-F VPK: Vertical peaking gain. 0= NO VPK.

195-F LINLENH60: Number of pixels for 60HZ. Default value is 3.

196-F DISCOMB: Disable comb filter. Depending video source selected.

197-F HWID: Minimum width of H sync. Default value is 0.

198-F FION: Increment freeze before V sync. 0= no freeze.

199-F PPLIP_H: Default value is 2.

200-F PPLIP_L: Pixel per line. Default value is 0.

201-F TO1RGB: YUV output selection. Default value is 0.

202-F BLANDEL: Delay in pixels from h sync. Default value is 0 (no delay).

203-F VBLANPOL: Vertical blanking signal polarity. 0= positive.

204-F HOUTPOL: Horizontal output polarity. 0= high active.

205-F VOUTPOL: Vertical output polarity. 0=high active.

206-F BLANPOL: Blank polarity. 0=high active.

207-F VBLANDEL_95: Vertical delay in lines from in v sync. Default value is 0.

208-F BLANLEN_H: Default value is 0.

209-F BLANLEN_L: Default value is 0.

210-F VBLANDEL_40: Vertical length in lines from start of active blank signal. Default value is 0.

211-F VBLANLEN_H: Vertical length in lines from start of active blank signal. Default value is 0.

212-F VBLANLEN_L: Vertical length in lines from start of active blank signal. Default value is 0.

213-F PKLY: Voltage level for Y DAC output. Default value is 237d.

214-F PKLU: Voltage level for U DAC output. Default value is 254d.

215-F COARSEDEL: Luminance coarse delay output. Default value is 5d.

216-F FINEDEL: Luminance fine delay output. Default value is 0.

217-F PKLV: Voltage level for V DAC output. Default value is 254d.

218-F MDVFON: Default value is 1.

219-F FM-RES: Default values is 0.

220-F FM-THYON: Default value is 0.

221-F FM-THRON: Default value is 1.

222-F FMATH: Default value is 0.

223-F FMDTH: Default value is 15.

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224-F RGAIN CTRL NTSC: Red gain control is used for white point adjustment. Range: 0-255d.

225-F GGAIN CTRL NTSC: Green gain control is used for white point adjustment. Range:0-255d.

226-F BGAIN CTRL NTSC: Blue gain control is used for white point adjustment. Range: 0-255d.

227-F R-CUTOFF NTSC: Red cutoff control is used to adjust cut-off voltage at the cathode. Range: 0-255d.

228-F G-CUTOFF NTSC: Green cutoff control is used to adjust cut-off voltage at the cathode. Range: 0-255d.

229-F B-CUTOFF NTSC: Blue cutoff control is used to adjust cut-off voltage at the cathode. Range: 0-255d.

230-F OSD CONT NTSC: OSD amplitude can be controlled by OSD contrast with a range of 12dB. Default value is 7d.

231-F AC BLK LEV NTSC: Black level for AC coupling with 3bit DAC. Default value is 0.

232-F BRI NTSC: Default value is 0 (internal brightness control with grey scale tracking).

233-F DISV NTSC: RGB Video signal on/off. Default value is 0 (enabled).

234-F FPOL NTSC: Default value is 0 (Negative feedback polarity selected, No external DAC voltage outputs).

235-F DEPTH_PB NTSC: Produces an ultra black level during blanking and output clamping which is the most negative signal at the signal output pins. Default value is 1.

236-F APCONSVGA

FACTORY MENU 2

NTSC VIDEO ADJUST

001-F AUX OFFSET: Black level settings for composite video and S-Video inputs. Depends of RF sub brightness adjustment. Max value of 64d and default value of 32d.

002-F YUV OFFSET: Black level setting for Y Pr Pb input. Depends of RF sub brightness adjustment. Max value of 64d and default value of 32d.

003-F MAX CONTRAST: Max value of 64d and default value of 40d for 27"and 33d for 32" for NTSC video format. This value is used in one formula to limit the max contrast level.

004-F MAX BRIGHT: Max value of 64d and default value of 55d for 27" and 64d for 32". This value is used in one formula to limit the max brightness level.

005-F SUB COLOR: Max value of 63d and default value of 32d.This value is used in one formula to limit the minimum color level.

006-F MAX COLOR: Max value of 63d and default value of 55d for 27" and 47d for 32". This value is used in one formula to limit the maximum color level.

007-F RF SUB_TINT: Max value of 15d and default value of 7d. This value is used in one formula to center the tint level of RF input.

008-F AUX SUB_TINT: Max value of 15d and default value of 7d. This value is used in one formula to center the tint level of composite video inputs.

009-F YC SUB_TINT: Max value of 15d and default value of 7d. This value is used in one formula to center the tint level of S-Video inputs WHITE BALANCE RESET.

010-F NTSC CUT: Max value of 254d and default value of 127d. This register is used in one formula to reset the red, green and blue cutoff values of RF, Composite video and S-Video inputs before G2 setup and white balance adjustment.

011-F NTSC GAIN: Max value of 254d and default value of 127d. This register is used in one formula to reset the red, green and blue gain values of RF, Composite video and S-Video inputs before G2 setup and white balance adjustment.

012-F SVGA CUT OFFSET: Max value of 254d and default value of 127d. . This register is used in one formula to reset the red, green and blue cutoff values of SVGA inputs before G2 setup and white balance adjustment.

013-F SVGA GAIN OFFSET: Max value of 254d and default value of 127d. This register is used in one formula to reset the red, green and blue gain values of SVGA input before G2 setup and white balance adjustment.

014-F YPrPb CUT OFFSET: Max value of 254d and default value of 127d. . This register is used in one formula to reset the red, green and blue cutoff values of Component inputs before G2 setup and white balance adjustment.

015-F Y PrPb GAIN OFFSET: Max value of 254d and default value of 127d. This register is used in one formula to reset the red, green and blue gain values of component inputs before G2 setup and white balance adjustment.

DEFLECTION OFFSETS

016-F H_SIZE OFFSET

017-F H_POSITION OFFSET

018-F V_SIZE OFFSET

019-F V_SCROLL OFFSET

020-F PIN_AMP OFFSET

021-F UP_CPIN OFFSET

022-F LO_CPIN OFFSET

SVGA

023-F UP-BLK

024-F LO-BLK

025-F AFC_BOW: Vertical line bow adjustment. Range: 0-63, Initial value: 31.

026-F AFC_ANGLE: Vertical line slope adjustment. Range: 0-63, Initial value: 31.

027-F V_ASPECT: Aspect control ratio. Range: 0-63, Fixed Value: 47 for 4:3 CRT.

028-F V_SIZE: Vertical amplitude adjustment. Range: 0-63, Initial value: 50.

029-F V_POSITION: Vertical position adjustment. Range: 0-63, Initial value: 31.

030-F V_SCROLL: Vertical picture scroll control. Range: 0-63, Initial value: 28.

031-F V_LIN: Vertical linearity adjustment. Range: 0- 15, Initial value: 07.

032-F V_S_CORRECTION: Vertical S correction. Range: 0-15, Initial value: 5.

033-F UP_VLIN: Vertical linearity control. Range: 0- 15, Initial value: 0.

034-F LO_VLIN: Vertical linearity control. Range: 0- 15, Initial value: 0.

035-F H_SIZE: Horizontal amplitude adjustment. Range: 0-63, Initial value: 43.

036-F H_POSITION: Horizontal position adjustment. Range: 0-63, Initial value: 31.

037-F PIN_PHASE: Horizontal trapezoidal adjustment. Range: 0-63, Initial value: 31.

038-F PIN_AMP: Pincushion adjustment. Range: 0-63, Initial value: 31.

039-F UP_CPIN: Horizontal pin adjustment for top edge. Range: 0-63, Initial value: 38.

040-F LO_CPIN: Horizontal pin adjustment for bottom edge. Range: 0-63, Initial value: 34.

041-F UP_UCP: Horizontal pin adjustment for extreme top edge. Range: 0-3, Initial value: 0.

042-F LO_UCP: Horizontal pin adjustment for extreme bottom edge. Range: 0-3, Initial value: 0.

043-F UP_UCG: Horizontal pin gain adjustment for extreme top edge. Range: 0-3, Initial value: 0.

044-F LO_UCG: Horizontal pin gain adjustment for extreme bottom edge. Range: 0-3, Initial value: 0.

045-F UC_POL: Horizontal pin polarity setting for extreme top & bottom edge. Range: 0-1, Initial value: 0.

046-F V_COMP: HV fluctuation compensation amount setting for vertical picture size. Range: 0-15, Initial value: 07.

047-F H_COMP: HV fluctuation compensation amount setting for horizontal picture size. Range: 0-15, Initial value: 07.

048-F PIN_COMP: HV fluctuation compensation amount setting for horizontal pin distortion.Range: 0-7, Initial value: 0.

049-F AFC_COMP: HV fluctuation compensation amount setting for H position. Range: 0-7, Initial value: 0.

050-F RGAIN OFFSET

051-F GGAIN OFFSET

052-F BGAIN OFFSET

053-F R-CUT OFFSET

054-F G-CUT OFFSET

055-F B-CUT OFFSET

056-F SUBBRIGHT SVGA: Max value of 64d and default value of 31d for SVGA format. Depends on factory adjustment of NTSC video format.

057-F MAXCONTRAST SVGA: Max value of 64d and default value of 52d for 27"and 58d for 32"for NTSC video format. This value is used in one formula to limit the max contrast level on SVGA format.

058-F MAXBRIGHT SVGA: Max value of 64d and default value of 35d for 27" and 54d for 32". This value is used in one formula to limit the max brightness level on SVGA format.

059-F OSD CONT SVGA: OSD amplitude can be controlled by OSD contrast with a range of 12dB. Default value is 7d.

060-F AC BLK LEV SVGA: Black level for AC coupling with 3bit DAC. Default value is 0.

061-F BRI SVGA: Default value is 1 (internal brightness control without grey scale tracking).

062-F DEPTH PB SVGA: Produces an ultra black level during blanking and output clamping which is the most negative signal at the signal output pins. Default value is 1.

063-F DISV SVGA: RGB Video signal on/off. Default value is 0 (enabled).

064-F FPOL SVGA: Default value is 0 (Negative feedback polarity selected, No external DAC voltage outputs).

Y Pr Pb: IC VSP9405.

065-F PWTHDM: Selection of white peak threshold. Default value is 3.

066-F LMOFSTDM: Luminance offset in color decoder during visible picture. 0= No offset NTSC.

067-F VINPM: Vertical pulse detection. 0= from sync signal

068-F HINPM: Synchronization input. 0= from CVBS front end.

069-F BRTADJ: Brightness adjustment for Y Pr Pb. Default value is 235d.

070-F CONADJ: Contrast adjustment for Y Pr Pb. Default value is 42d.

071-F CHRSFR: Chroma sub-sampling filter.1=enabled

072-F AASEL: Digital anti-aliasing selection.0=-3Db @ 10.6Mhz

073-F FBLDEL: Fast blanking delay vs RGB/YUV input. 2= 100ns delay.

074-F GOFST: Clamping correction for G ADC. 2=64 G/Y with sync, pedestal offset visible.

075-F MIXGAIN: Gain of fast blanking signal. Default value is 3.

076-F YFDEL: Y delay adjustment. Default value is 55d.

077-F UVDEL: UV delay adjustment. Default value is 55d.

078-F RGBSEL: RGB input selection. 0= Use RGB/YUV input1.

079-F USATADJ: U saturation adjustment. Default value is 40d.

080-F VSATADJ: V saturation adjustment. Default value is 42d.

081-F ADCSEL: Select ADC for sync signal conversion. 0=Use ADC_G

082-F AABYP: Bypass RGB/YUV anti-aliasing filter. 0 = use filter

083-F CLMPVG: Clamping value G ADC. 1=80.

084-F DCLMPF: Clamping value fast blank input. 0= enabled.

085-F AGCADJR: Gain adjustment Red. Default value is 32d.

086-F AGCADJB: Gain adjustment Blue. Default value is 32d.

087-F MIXOP: Mixing configuration. Default value is 1.

088-F CLMPRB: Clamping value Red and Blue ADC.

089-F AGCADJG: Gain adjustment Green. Default value is 32d.

090-F AGCADJF: Gain adjustment fast blank. Default value is 32d.

091-F RBOFST: Clamping correction for R/B ADC. Default value is 4d.

092-F FBLOFFST: Fast blank offset correction. Default value is 32d.

093-F YUVSEL: YUV or RGB input selection. Default values is 0 (YUV expected).

094-F OPDEL_MSB: Vertical delay for output operation. Default value is 0.

095-F OPDEL: Vertical delay for output operation. Default value is 247d

Y Pr Pb: IC TDA4887

096-F RGAIN CTRL Y PrPb: Red gain control is used for white point adjustment. Range: 0-255d.

097-F GGAIN CTRL Y PrPb: Green gain control is used for white point adjustment. Range:0-255d.

098-F BGAIN CTRL Y PrPb: Blue gain control is used for white point adjustment. Range: 0-255d.

099-F R-CUTOFF Y PrPb: Red cutoff control is used to adjust cut-off voltage at the cathode. Range: 0-255d.

100-F G-CUTOFF Y PrPb: Green cutoff control is used to adjust cut-off voltage at the cathode. Range: 0-255d.

101-F B-CUTOFF Y PrPb: Blue cutoff control is used to adjust cut-off voltage at the cathode.Range: 0-255d.

102-F OSD CONT Y PrPb: OSD amplitude can be controlled by OSD contrast with a range of 12dB. Default value is 7d.

103-F AC BLK LEV Y PrPb: Black level for AC coupling with 3bit DAC. Default value is 0.

104-F BRI Y PrPb: Default value is 0 (internal brightness control with grey scale tracking).

105-F DEPTH PB YUV: Produces an ultra black level during blanking and output clamping which is the most negative signal at the signal output pins. Default value is 1.

106-F DISV Y PrPb: RGB Video signal on/off. Default value is 0 (enabled).

107-F FPOL Y PrPb: Default value is 0 (Negative feedback polarity selected, No external DAC voltage outputs.

NTSC: IC CXA2150

108-F LTILEV_YPRPB: Luminance signal edge enhancement setting for Component video input. Range: 0-3, 0 = OFF, 1 = Low, 2 = Medium (default), 3 = High.

109-F LTIMODE_YPRPB: Luminance transient improvement for component video input. Default value in 1.

110-F LTILEV_YC: Luminance signal edge enhancement setting for S-Video inputs. Range: 0-3, 0 = OFF, 1 = Low, 2 = Medium (default value), 3 = High.

111-F LTIMODE_YC: Luminance transient improvement for S-Video inputs. Default value in 1 Y Pr Pb: IC CXA2150

112-F CTILEV_RF: Chrominance transient improvement for RF input. Default value is 3.

113-F CTIMODE_RF: Chrominance transient mode for RF input. Default value is 1 NTSC: VSP9405.

114-F LTILEV_RF: Luminance signal edge enhancement setting for RF input. Range: 0-3, 0 = OFF, 1 = Low, 2 = Medium, 3 = High.

115-F LTIMODE_RF: Luminance transient improvement for RF input. Default value in 1.

116-F SYSTEM_RF: Signal frequency band switching; select the band in accordance with the TV System. Range: 0- 3, 0 = NORMAL, 1 = FF, 2 = HD, 3 = FIX-HD (setting which gives greater importance to frequency response than 2).

117-F YCDELM_RF: The between Y and C is well aligned and can also be adjusted in steps of 50 ns for RF input. Default value is 31.

118-F PKCTIBPM_RF: Band pass Peaking factor for CTI of RF input. Default value is 1.

119-F PKCTIHPM_RF: High pass Peaking factor for CTI of RF input. Default value is 1.

CIRCUIT OVERVIEW

BASIC CIRCUIT THEORY

POWER SUPPLY DEFINITION

The Power Supply uses a COLD chassis and is a single sided circuit board that has been developed for screen sizes 27" through 32". The power supply features two switch mode power regulators for voltages sources. One is intended for Standby sources and the other one supplies the main switched voltages.

Both power supplies use direct regulation. One error amplifier and one optocoupler are used for each power supply. This chassis also is Energy Star compliant for low power consumption in standby mode (less than 1 Watt of consumption). This is the main reason for the standby power supply.

SWITCH MODE REGULATOR

This chassis has two switching power supplies (quasi-resonant topology type). The AC line is routed through the fuse FX3400 (5A @ 250 V slow blow) and then through the bridge rectifier circuit BRX3400 and CX3406 for the switched power supply and through the bridge rectifier circuit BRX3410 and CX3414 for the stand-by power supply. The AC operation range is between 90 Vrms to 135 Vrms. A filter consisting of LX3400, CX3402 and CX3403 is employed before the rectifier circuits to reduce noise from the AC line and vice versa (EMI).

STAND-BY START UP

The voltage output of rectifier BRX3410 (+V2 150VDC) is applied to the standby SMPS which consists of ICX3612, ICX3700, ICX3701, and the standby chopper transformer TX3612.

When the PIN 5 of ICX3612 terminal voltage reaches 17.5 VDC (typical), the control circuit enables regulator operation. Once the regulator output voltage is established, the drive winding DX3601 starts to charge CX3605 via DX3601. The voltage on CX3605 thus recovers to the nominal drive voltage.

SWITCHED POWER SUPPLY START UP

The voltage output of the rectifier BRX3400 (+V1 150VDC) is supplied to the Main Switch Mode Regulator Power Supply (SMPS).

The Main SMPS consists of ICX3670, ICX3750, and ICX3751. Its chopper transformer consists of TX3670.

When the PIN 4 of ICX3670 terminal voltage reaches 16 VDC (typical), the control circuit enables regulator operation. Once the regulator output voltage is established, the drive winding DX3653 starts to charge CX3653 via DX3653. The voltage on CX3653 thus recovers to the nominal drive voltage.

DEFLECTION AND HIGH VOLTAGE SECTION

The principal function of the Deflection and HV circuits is to supply horizontal and vertical currents to the deflection yoke coils, and the high voltage generation. They are designed for use in a single frequency television. The new FCS converts the NTSC horizontal scan 15.75KHz to 37.9 KHz scan by means of a digital video processor.

This section can be divided into 5 functional blocks.

1. Horizontal Deflection and HV Generation
2. Base Drive
3. Pincushion Modulator Circuit
4. Shutdown Circuit
5. Vertical Deflection

Horizontal Deflection and HV Generation

The Horizontal Deflection circuitry is a common flyback type used in many television and monitor applications. QX3204 is the Horizontal Output Transistor. When QX3204 is initially turned on, current is allowed to flow from the B+ supply, through TX3201 and QX3204. This allows energy to be stored in TX3201.

When QX3204 is turned off some of this energy is returned to charge the S-capacitor(s) CX3209, CX3208, and CX3210. After several cycles (repeating at scanning frequency) sufficient voltage appears across the S-capacitor providing an additional path producing current flow though the horizontal deflection yoke coil (connector CN3Y3). The Damper Diodes DX3202 and DX3203 provide the negative current path. The result is a positive and negative saw tooth current through the horizontal deflection coils (approximately 12 to 14 Amps. peak to peak). When QX3204 is turned off about 1300 Volts peak of flyback voltage is produced from the stored energy in the horizontal deflection coils and TX3201. This voltage is induced to secondary windings of TX3201 to generate the high voltage, 30 KV. The flyback (or retrace) period is about 5 uS.

A capacitive divider, CX3205 and CX3207, provides a low voltage flyback pulse (H-FBP) used for synchronization, phase comparison, etc. This pulse is sent to the main chassis via pin 3 of connector CN1D2. Linearity Coil, L3200, is a saturating inductor skewed by a permanent magnet bonded to the coil. It produces a nonlinear inductance curve vs the current. This characteristic cancels non-linearities in the deflection current caused by horizontal deflection coil resistance.

Base Drive

The base Drive circuit provides high forward and reverse current to drive the base of the Horizontal Output Transistor QX3204, from a low level input (H-DRV from the Deflection Processor, ICM2200, in Main Chassis) at pin 2 of connector CN1D2. This signal is approximately 9 volts peak at the operating frequency and has a duty cycle of about 40% high, 60% low.

Current from H-DRV is amplified by transistor Q3200 and Q3201, providing a low impedance to rapidly drive the gate of the drive transistor, Q3203. This action results in an alternating current flow in the primary of driver transformer, TX3200. During Q3203 on time, energy is stored in TX3200 and rapid turn off of QX3204 is initiated. During Q3203 off time, the energy previously stored in TX3200 is used to drive the base of QX3204.

Pincushion Modulator Circuit

This circuit receives a pincushion and size correction signal. EW-DRV from the Deflection Processor (ICM2200), Pin 4 of connector CN1D2, modulates the Yoke current to provide keystone and pincushion geometric correction. EW-DRV is a vertical deflection rate parabola.

Shutdown Circuit

The flyback pulse voltage from pin 9 of TX3201 (Flyback Transformer) is peak detected (rectified) by the action of diode D3205 and capacitor C3218. This form a DC voltage appearing on C3218 representative of the CRT anode voltage (HV) produced by TX3201. Precision resistors R3001, R3002, R3003 and R3004 divide this voltage down. This lower voltage appears on one input of the comparator circuit formed by Q3000 and ZD3003. In the event the CRT anode voltage become excessive, the comparator circuit output will go to high level at approximately 5 volts. This signal (H-PROT) is send to Deflection Processor (ICM2200), Pin 7 of connector CN1D2, causing Horizontal Drive to be disabled and latched, preventing further generation of anode voltage. The drive will remain off until power (via remote control or front panel) is cycled from “Off” to “On”.

Vertical Deflection

The Vertical Deflection circuit, IC2100, is a linear amplifier that can directly drive the yoke current (including the required DC component). The sawtooh waveforms needed, as inputs, by IC2100 are generated in the Deflection Processor, ICM2200, in Main Chassis, VD+ and VD- pin 11 and 22 of connector CN1D2.

PURITY ADJUSTMENT

1. Purity tab positioning. Set the 2 pole purity tabs together in the 3 or 9 o'clock positions and the 4-
and 6-pole purity tabs together in the 12 or 6 o'clock positions.

2. Move yoke to the maximum forward funnel position.

3. Next, switch the crosshatch generator to a red field.

4. Pull the yoke toward the rear of the CRT neck, keeping it centered, until a red raster is displayed.

5. If the red raster is not displayed as a pure red field, adjust the 2-pole purity tabs until a pure field is obtained.

6. Check for proper yoke tilt setting.

CONVERGENCE ADJUSTMENT

1. Release locking assembly.

2. Connect crosshatch generator to the receiver and adjust static (center) convergence as follows:

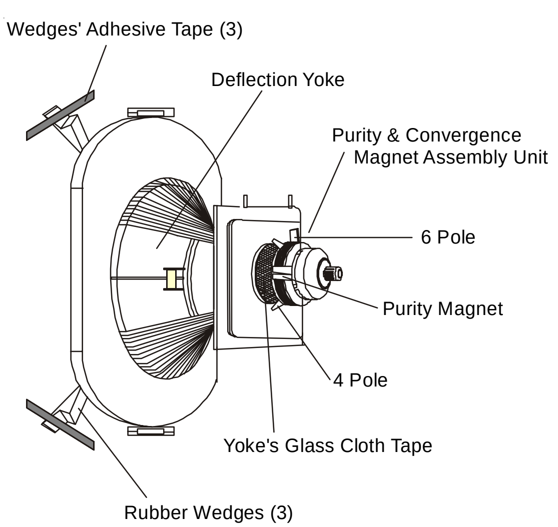
a. Adjust the 4-pole static control by moving the two tabs separately to converge the red and blue lines horizontally. Move the two tabs together around the neck of the CRT (in a 45° arc) from the top-dead center position to converge the red and blue lines vertically.

b. After the 4-pole control has been adjusted to superimpose the red and blue lines on top of one another.

Use the 6-pole static adjustment to place the converged red and blue lines over the green line. Move the two tabs together around the neck of the CRT (in a 30° arc) from the top-dead-center position to move the lines vertically. Adjusting the two tabs separately will move the converged beam to the left or right. Using a crosshatch generator capable of producing individual fields, adjust the generator to produce a red field. Use the purity tabs to center a red stripe.

VERTICAL-TILT WEDGE ADJUSTMENT

The vertical lines at 6 and 12 o'clock are converged by vertically tilting the yoke and inserting a wedge at the top of the yoke until it is firmly seated between the CRT glass and the horizontal coils.



CRT Ring Location Purity
Adjust Tabs Beam Movement
for Convergence

Ring Pairs	Rotation direction of Both Tabs	Movement of Red and Blue Beams
6 Pole Convergence R&B over G	Opposite	←B ←R OR B→ R→
	Same	B↑ R↑ OR B↑ R↑
4 Pole Convergence R over B	Opposite	←B R→ OR B→ ←R
	Same	B↑ R↓ OR B↓ R↑

HORIZONTAL-TILT WEDGE ADJUSTMENT

The vertical lines at 3 o'clock and 9 o'clock are converged by horizontally tilting the yoke and inserting a wedge.

Adjust first at 4 or 8 o'clock, whichever has the larger space, until the wedge is firmly seated between the CRT glass and yoke coils. Then, insert the 3rd wedge in the remaining horizontal tilt position until it is firmly seated between the CRT glass and yoke coils. Convergence at the 3 and 9 o'clock should be maintained during this operation.

When the 3 wedges are firmly installed and positioned for acceptable convergence, lock the wedges in place by applying a 2.5 inches long strip of tape across the tabs of each wedge firmly against the CRTM glass. The CRT glass surface should be clean and free of dust and other foreign material.

UNUSUAL TILT CASE

There may be some instances where the picture tube and yoke will require vertical tilt in the opposite (up) direction to obtain convergence. In such cases, insert the vertical tilt wedge at the bottom (6 o'clock) position. Follow through on the horizontal tilt adjustment by using the 2 and 10 o'clock positions and secure each wedge with a piece of tape, as described above.

IMPROVING CRT CORNER PURITY

CRTs that display corner purity problems even after following the service procedures can be modified with a picture correction kit (P/N 949-00050). The purity can be improved by placing a picture-correction magnet (included in the kit) on the CRT funnel. Refer to the following modification steps and illustration to place the magnet properly. Fully degauss the CRT before installing correction magnets.

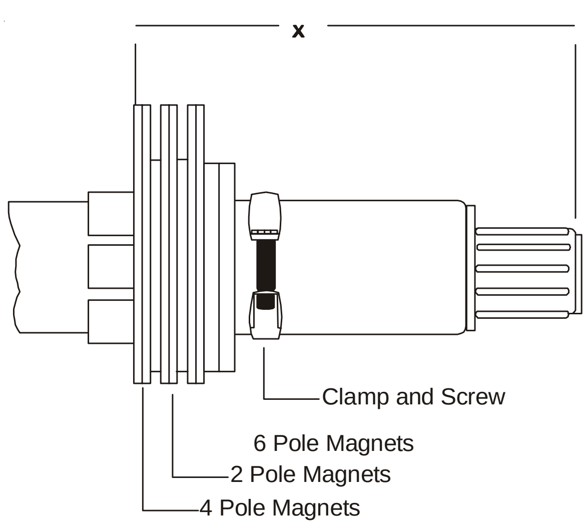
MODIFICATION 1. Place the magnet on the CRT funnel as shown in the figure displayed below, in the quadrant exhibiting impurity.

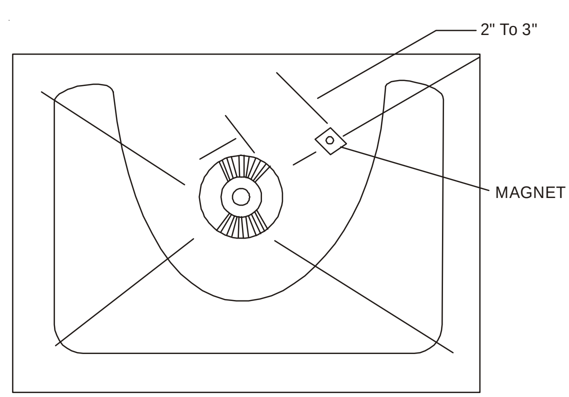
2. Rotate the magnet in place to the position shown for best purity.

3. Place a piece of 1/2" by 2" long Fiberglass tape over the magnet to hold it in place.

4. Degauss the CRT once magnet is in place to insure that the magnet is not over the internal magnet shield.

Note: If the magnet is placed over the internal magnet shield, any apparent purity correction will disappear after degaussing. Reposition the correction magnet off the internal shield and degauss again.





VIDEO OUTPUT AMP IC

IC5121, IC5141 and IC5161 consists of one monolithic video output amplifier. It is called a transadmittance-transimpedance amplifier because it can be split into two amplifier stages in series. The first stage is a voltage to current stage (trans admittance) and the second stage is a current to voltage stage (trans impedance). At the second stage voltage to current feed-back is applied by resistor (R5125) connected from out (pin 13) to in (pin 5). The trans admittance of the first stage can be chosen by means of a resistor between pin 1 and pin 3, represented on this circuit by RM5122. The signal input is through a differential pair of transistors. The signal is connected on pin 2 (Vin). The input configuration consists of a bipolar npn transistor in a long tailed pair configuration. Input current is 30uA type. Black current data pin (7) is not used. Video output current is delivered by a quasi-complementary class A/B push-pull stage designed in DMOS technology which can source and sink a current of 100mA for video output voltages of 125Vp-p. A feature of this output stage is the low saturation voltage (typ. 4V) and the low voltage drop at high level (typ. Vdd- 6V). Frequency response is improved by means of a capacitor (CM5121) in series with a resistor (RM5123) connected between pins 1 and 3 of the IC. Value of those elements is compromise between bandwidth, overshoot, and ringing.

AUDIO PROCESSING

STEREO MODULE

There are six different Audio inputs: Antenna/Cable, Aux video, S-Video, Rear Computer, and Front Computer/ Front Video. The sixth input come from a provision for one scan card that can be plugged in to the rear jack pack. The Tuner/IF section processes the Antenna/ Cable signal. It then passes as Sound IF (4.5MHz) to the audio processor to be demodulated.

At the front jack pack one pair of audio jacks is used with both the Computer and Aux. Video inputs. (If both video inputs are in use the Aux. Video is selected as default input.) The rear jack pack includes one set of audio jacks for the S-Video, another set of audio jacks for the Aux. Video input, and a third pair for the RGB Computer input. The Audio processor IC1400 switches between the Sounf IF input on pin 47 (ANA_IN+) from Tuner/IF section and pins 41 & 42 (SC1_IN_L & SC1_IN_R, the L/R channels from the A/V Switch ICM2900). The A/V Switch chooses from among five inputs from external audio sources (Rear and Front jack packs). The I²C bus controls both IC's. The power amplifier IC801 takes the Left and Right channels from the audio processor DACM_R (pin 24) and DACM_L (pin 25) outputs. Variable output monitor is taken from the audio processor SC1_OUT_R (pin 30) and SC1_OUT_L (pin 31) outputs.

SWITCHING THEORY

Audio source selection for Digital FCS chassis sets is made through the Source Select internal switch inside the IC1400 audio processor. This switch is controlled by Loudspeaker Source Select register to select ANA_IN+ Tuner /IF signal or SC1_IN (Audio/Video switch), or SC2_IN (Not used). The A/V Switch chooses one of the Audio/Video input External sources: Video Aux., S-Video, Rear Computer, Front Computer/Video or from Scan Card (when this is plugged in to the rear jack pack and it has L/R audio inputs).

The A/V switch ICM2900 selects which auxiliary input goes to the audio processor.

After the A/V switch makes the audio source selection the L/R channels (LOUT1/ROUT1) are fed to the audio processor. The output signals of the audio processor (DACM_L and DACM_R) are applied to the Audio power amplifier IC800. The coupling between the Audio processor and the Audio power amplifier is made through the electrolytic capacitors C811 and C821. This is done in order to block the DC level of the DACM_R and DACM_L pins respectively.

SIGNALS

Three types of signals, ATSC, NTSC and SVGA, are processed in the set. The ATSC signals are down converted to NTSC signals and it are processed as composite video signals. The input pin, of the A/V Switch is the pin 15.

•CV RF: The IF section sends the composite video to the **ICM2900** A/V switch (CXA2089Q, I2C bus supported) at pin 47.

•CV-2: Fed from the rear jack pack to the A/V switch at input pin 8.

•CV-4: This input, called Camport, is fed to the A/V switch via pin 23.

•Y1-IN: This is the luminance input of the Y/C (super video) connector and is fed to the A/V switch through pin 3.

•C1-IN: This is the chroma part of the Y/C (super video) connector and is fed to the A/V switch through pin 5.

All of these signals must be input to the A/V switch with a loaded 75ohms @ 1 V p-p level. The microprocessor selects the signal through the I2C bus. Switched composite video is sent to the pin 53 of ICM2001 IC Micronas. This IC has internally a 4H 3L comb filter used to separate the luminance and chroma components. Switched luminance and chrominance signals are sent to pin 55 and 56 of the ICM2001.

INTEGRATED CIRCUITS

ICM2001 (VSP9405B, I2C bus supported) is a SCANRATE CONVERTER including CHROMA DECODER. Package is a QFP80.. It receives luminance and chroma signals plus composite video signal and decodes them to YUV video with synchrony. The diagram shows the connections of the luminance signal to the synchrony inputs. This is because the chip extracts the horizontal and vertical sync pulses from the luminance composite sync. All output signals are up converted to 37.9Khz

The YUV – H, V sync signals from the ICM2001 are fed to the ICM2700 at pin 4(IN3_H) and pin 5 (IN3_V). The **ICM2700** (CXA2151, I2C bus supported) is a multiscan and incorporates four system video switch including H, V sync signal processing. It has sync signal automatic identification circuit with fixed mode. Also, receives the H, V SYNC –SCAN (comes from SCAN CARD) at pins 36 (IN1_H/L1) and 37 (IN1_V/L2) and the H, V SYNC –FRONT (comes from front jack pack) at pins 44 (IN2_H/L1) and 45 (IN2_V/L2) to be switched in itself. The **ICM2200** (CXA2150Q, I2C bus supported) is a bipolar IC which integrates base band Y/C signal processing, RGB processing, Horizontal sync signal processing that support 37.9Khz. The output of the ICM2200 is three lines of video (RGB) and two lines of sync (HV). The RGB lines are connected to the **ICM2702** (BA7657F) together with external RGB computer signals come from **ICM270**1 (BA7657F) are switched to video output board.

VIDEO OUTPUT BOARD

The Video Output Board is composite by one 160Mhz Video pre-amplifier IC, three monolithic power amplifier ICs (one for each color signal) and one Spot Killer circuit.

The Video pre-amplifier IC5101 receives the RGB OSD, Fast Blanking OSD, Clock and Data signals from the main board through CN9C3 12-pins connector. The main RGB signals are carried in to the video module through the CN9C2 8-pins connector. The ABL, CLAMP and Horizontal Fly Back signals are feed to the pre-amplifier IC through the CN9C4, 4-pins connector.

The power supply is 8V DC –5%, +10%. The pin 7 is the power supply for the input stage and the pins 21,18 and 15 are the power supplies for the RGB output stages.

The main functions of this IC are, Main picture Contrast and Brightness control, OSD Contrast control, RGB Cutoff and RGB Gain adjustments and ABL control.

The RGB input signals are capacitive coupled by CM5109, CM5110 and CM5111 4700pF smd capacitors and actively clamped to the internal reference black level during signal black level. The Input signal amplitude is 0.7V (black to white) and should not exceed 1V. The coupling capacitors

Also functions as storage capacitors between clamping pulses. Very small input currents will discharge the coupling capacitors resulting in black output signals for missing input clamping pulses. (Pin 5 CL1).

In the output stage the nominal input signal will be amplified to provide a 4.6V output color signal

At maximum contrast and maximum gain settings. Reference or pedestal black levels are adjusted by output clamping (pin 11 HFB).

In order to achieve fast rise and fall times of the output signals with minimum crosstalk between Channels, each signal stage has its own supply voltage pin.

The pin LIM (pin 24) is a linear contrast control pin, which allows sub contrast setting, contrast modulation and beam current limiting. The maximum contrast is defined by the actual I2C bus setting. Input signals at pin LIM act on video and OSD signals and do not affect the contrast bit resolution.

ABL processing occurs inside of IC preamplifier. The open circuit voltage of the Beam Current Limiting is approximately 5V, contrast reduction starts at input voltages <4.4V and signal amplification will be reduced with descending input voltages.

The RGB output signals of this IC goes directly coupled to the input pins each power amplifier IC. Pin 2 of IC5121, IC5141 and IC 5161.

The core of the Red amplifier is IC5121. This IC is an operational amplifier, configured as an inverting amplifier. The inverting input is on pin 2 and the non-inverting input is on pin 4. The Feedback resistor is R5125. The amplifier has a gain peaking network between pin 1 and pin 3. This network is internally connected to the collectors of the differential input transistors.

The input signal is connected to the inverting input of the amplifier through resistor R5151 to avoid Hi frequency oscillations. The non-inverting input is connected to a voltage bias formed by resistors R5101and R5102. The C5122 is for AC decoupling and CM5123 is for Hi Frequency filter purposes (one for each IC). The IC takes this voltage bias as a reference voltage for the input signal. The reference voltage is the same for the three-color amplifiers. The output is at pin 12 of the IC and goes to the CRT cathode through the resistors R5127, R5128, for arcing protection, and the coil L5121 for peaking improvement.

MODEL PARTS

MODEL: H27H49S	
PART NUMBER	**DESCRIPTION**
0CB10212474	Capacitor,Film,DIP
0CC0800K115	Capacitor,Ceramic,Radial
0CC100CK41A	Capacitor,Ceramic,Chip
0CC101CK41A	Capacitor,Ceramic,Chip
0CC101DR41A	Capacitor,Unclassified
0CC1020K405	Capacitor,Unclassified
0CC102CK41A	Capacitor,Ceramic,Chip
0CC200CK41A	Capacitor,Ceramic,Chip
0CC2210K415	Capacitor,Ceramic,Radial
0CC221CK41A	Capacitor,Ceramic,Chip
0CC270CK41A	Capacitor,Ceramic,Chip
0CC331CK41A	Capacitor,Ceramic,Chip
0CC4710K405	Capacitor,Ceramic,Radial
0CC680CK41A	Capacitor,Ceramic,Chip
0CC681CK41A	Capacitor,Ceramic,Chip
0CE1057K636	Capacitor,AL,Radial
0CE105CK636	Capacitor,AL,Radial
0CE105DK618	Capacitor,AL,Radial
0CE105SK6DC	Capacitor,AL,Chip
0CE106BT630	Capacitor,AL,Radial
0CE106DF618	Capacitor,AL,Radial
0CE106DK618	Capacitor,AL,Radial
0CE106SH6DC	Capacitor,AL,Chip
0CE106VF6DC	Capacitor,AL,Chip
0CE107DF618	Capacitor,AL,Radial
0CE107DJ618	Capacitor,AL,Radial
0CE107DK618	Capacitor,AL,Radial
0CE107SF6DC	Capacitor,AL,Chip
0CE108BJ618	Capacitor,AL,Radial
0CE108DD618	Capacitor,AL,Radial
0CE108DF618	Capacitor,AL,Radial
0CE108DH618	Capacitor,AL,Radial
0CE108DH630	Capacitor,AL,Radial
0CE108DJ618	Capacitor,AL,Radial
0CE224DK618	Capacitor,AL,Radial
0CE225DK618	Capacitor,AL,Radial
0CE226BK618	Capacitor,AL,Radial
0CE226DF618	Capacitor,AL,Radial
0CE226DK618	Capacitor,AL,Radial
0CE226SF6DC	Capacitor,AL,Chip
0CE227BK618	Capacitor,AL,Radial
0CE227CR650	Capacitor,AL,Radial
0CE227DD618	Capacitor,AL,Radial
0CE227DF618	Capacitor,AL,Radial
0CE227SF6DC	Capacitor,AL,Chip
0CE227VF6DC	Capacitor,AL,Chip
0CE228DD618	Capacitor,AL,Radial
0CE335DK618	Capacitor,AL,Radial
0CE336SD6DC	Capacitor,AL,Chip
0CE337RR6F0	Capacitor,AL,Radial
0CE474DK618	Capacitor,AL,Radial
0CE4753J618	Capacitor,Unclassified
0CE475BK618	Capacitor,AL,Radial
0CE475CK636	Capacitor,AL,Radial
0CE475DK618	Capacitor,AL,Radial
0CE476BK618	Capacitor,AL,Radial
0CE476DF618	Capacitor,AL,Radial
0CE476DH618	Capacitor,AL,Radial

MODEL: H27H49S	
PART NUMBER	**DESCRIPTION**
0CE476DK618	Capacitor,AL,Radial
0CE476DR618	Capacitor,AL,Radial
0CE476EU61A	Capacitor,AL,Radial
0CE476SF6DC	Capacitor,AL,Chip
0CE476VF6DC	Capacitor,AL,Chip
0CE477BH618	Capacitor,AL,Radial
0CE477DD618	Capacitor,AL,Radial
0CE477DH618	Capacitor,AL,Radial
0CE478BH650	Capacitor,AL,Radial
0CE5651K652	Capacitor,AL,Radial
0CK10201515	Capacitor,Ceramic,Radial
0CK10302932	Capacitor,Unclassified
0CK1030K945	Capacitor,Ceramic,Radial
0CK1030W510	Capacitor,Ceramic,Radial
0CK103CK56A	Capacitor,Ceramic,Chip
0CK103DN56A	Capacitor,Ceramic,Chip
0CK104AK46A	Capacitor,Unclassified
0CK104CF56A	Capacitor,Ceramic,Chip
0CK105CD56A	Capacitor,Ceramic,Chip
0CK2210W515	Capacitor,Ceramic,Radial
0CK47101515	Capacitor,Ceramic,Radial
0CK56101515	Capacitor,Ceramic,Radial
0CN1020K519	Capacitor,Ceramic,Axial
0CN1030F679	Capacitor,Ceramic,Axial
0CN6810K519	Capacitor,Ceramic,Axial
0CQ1041N509	Capacitor,Film,DIP
0CQ2231N509	Capacitor,Film,DIP
0CQ3341N401	Capacitor,Film,DIP
0CQ4731N509	Capacitor,Film,DIP
0CQ5631N409	Capacitor,Film,DIP
0CQ6831N509	Capacitor,Film,DIP
0CQZVBK002A	Capacitor, Film Box
0CQZVBK002C	Capacitor, Film Box
0CQZVBK002D	Capacitor, Film Box
0CZZVSB008D	Capacitor,Unclassified
0DD060009AC	Diode, Rectifier
0DD100009AQ	Diode, Rectifier
0DD120000BB	Diode, Rectifier
0DD560000AA	Diode Assembly
0DL233309AC	Led, Chip
0DR140039AC	Diode,Rectifier
0DR150009EA	Diode,Rectifier
0DR200009DA	Diode,Rectifier
0DR360000AA	Diode,Rectifier
0DR500000CA	Diode, Swithching
0DRGF00069A	Diode,Schottky
0DRGF00104A	Diode, Rectifier
0DRGF00104B	Diode, Rectifier
0DRGF00104C	Diode, Bridge
0DRGF00298A	Diode,Schottky
0DRON00182A	Diode, Rectifier
0DRON00268A	Diode,Schottky
0DSGF00019A	Diode, Swithching
0DZ110009AD	Diode,Zener
0DZ330009DF	Diode,Zener
0DZ510009DB	Diode,Zener
0DZ620009AH	Diode,Zener
0DZ820009AH	Diode,Zener

MODEL PARTS

MODEL: H27H49S	
PART NUMBER	DESCRIPTION
0DZ910009AJ	Diode,Zener
0FS5001B51D	Fuse, Time Delay
0IAL241610B	IC, Atmel
0IAL242561B	IC, Eeprom
0ICTMFA001A	IC, Voltage Regulator
0ICTMMI060A	IC,Video Processors
0IFA753307A	IC, Voltage Detector
0IKE358000A	IC, Op Amplifier
0IKE704200B	IC Assembly
0IKE780500P	IC, Voltage Regulator
0IKE780500Q	IC, Voltage Regulator
0IKE780800J	IC, Voltage Regulator
0ILI817000G	Photo, Coupler
0ILNRJR017A	IC, Video Amplifier
0IMCR02243A	IC,Unclassified
0IMCRKE002B	IC, LDO Voltage Regulator
0IMCRMN013A	IS, Sound/Audio Processor
0IMCRMN029B	IC,Unclassified
0IMCRMZ001A	IC,DC,DC Converter
0IMCRSG010A	IC, Transceiver
0IMCRSG011A	IC,Voltage Regulator
0IMCRSJ001B	IC, LDO Voltage Regulator
0IMCRSO007A	IC, Micro Controller
0IMCRSO008A	IC, Graphic Controller
0IMMRHY057E	IC,DDR SDRAM
0IPH488700A	IC, Pre Amplifier
0IPH612000B	IC, Video Amplifier
0IPMG00006A	IC, Voltage Regulator
0IPMGSK019A	IC, PWM Controller
0IPRP00727A	IC, Data Controller
0IRH765700B	IC, Analog Switch
0ISA164500B	IC, Motor Driver
0ISA784500A	IC,Vertical Deflection Circuit
0ISG111733B	IC, LDO Voltage Regulator
0ISG726300B	IC, Power Amplifier
0ISO208900A	IC, Analog Switch
0ISS781200H	IC, LDO Voltage Regulator
0ISTLFA114A	IC,TTL
0ISTLPH052B	IC, BUS Repeater
0ISTLSG009A	IC,CMOS
0LA0101K119	Inductor,Wire Wound,Axial
0LA0102K119	Inductor,Wire Wound,Axial
0LA0102K139	Inductor,Wire Wound,Axial
0LA0152K119	Inductor,Wire Wound,Axial
0LA0471K119	Inductor,Wire Wound,Axial
0LA0472K119	Inductor,Wire Wound,Axial
0LA0472K139	Inductor,Wire Wound,Axial
0LA0681K119	Inductor,Wire Wound,Axial
0LA0820K119	Inductor,Wire Wound,Axial
0LA1000K119	Inductor,Wire Wound,Axial
0LA1000K139	Inductor,Wire Wound,Axial
0LA1800K119	Inductor,Wire Wound,Axial
0RD0101H609	Resistor,Carbon Film
0RD0102F609	Resistor,Carbon Film
0RD0102H609	Resistor,Carbon Film
0RD0152H609	Resistor,Carbon Film
0RD0331F609	Resistor,Carbon Film
0RD0392H609	Resistor,Carbon Film

MODEL: H27H49S	
PART NUMBER	DESCRIPTION
0RD0472F609	Resistor,Carbon Film
0RD0752F609	Resistor,Carbon Film
0RD1000F609	Resistor,Carbon Film
0RD1001F609	Resistor,Carbon Film
0RD1001H609	Resistor,Carbon Film
0RD1002F609	Resistor,Carbon Film
0RD1003F609	Resistor,Carbon Film
0RD1003H609	Resistor,Carbon Film
0RD1202F609	Resistor,Carbon Film
0RD1500F609	Resistor,Carbon Film
0RD1501F609	Resistor,Carbon Film
0RD1501H609	Resistor,Carbon Film
0RD1801F609	Resistor,Carbon Film
0RD2001F609	Resistor,Carbon Film
0RD2002F609	Resistor,Carbon Film
0RD2200F609	Resistor,Carbon Film
0RD2201F609	Resistor,Carbon Film
0RD2202F609	Resistor,Carbon Film
0RD2400H609	Resistor,Carbon Film
0RD2701F609	Resistor,Carbon Film
0RD2701H609	Resistor,Carbon Film
0RD2702F609	Resistor,Carbon Film
0RD2703F609	Resistor,Carbon Film
0RD3300F609	Resistor,Carbon Film
0RD3301F609	Resistor,Carbon Film
0RD3301H609	Resistor,Carbon Film
0RD3302F609	Resistor,Carbon Film
0RD3303F609	Resistor,Carbon Film
0RD3900H609	Resistor,Carbon Film
0RD4700F609	Resistor,Carbon Film
0RD4700H609	Resistor,Carbon Film
0RD4701F609	Resistor,Carbon Film
0RD4702F609	Resistor,Carbon Film
0RD4703H609	Resistor,Carbon Film
0RD5601F609	Resistor,Carbon Film
0RD5602F609	Resistor,Carbon Film
0RD5603F609	Resistor,Carbon Film
0RD6203F609	Resistor,Carbon Film
0RD6800H609	Resistor,Carbon Film
0RD6801F609	Resistor,Carbon Film
0RD7500F609	Resistor,Carbon Film
0RF0101K607	Resistor,Fusible
0RF0470K607	Resistor,Fusible
0RF0471H609	Resistor,Fusible
0RF0561H609	Resistor,Fusible
0RF1000H609	Resistor,Fusible
0RKZVTA001C	Resistor,Metal Film
0RKZVTA001K	Resistor,Metal Film
0RMZVBK002D	Resistor,Cement
0RN0271J607	Resistor,Metal Film
0RN1002F409	Resistor,Metal Film
0RN1602F409	Resistor,Metal Film
0RN1623G109	Resistor,Metal Film
0RN2201G509	Resistor,Metal Film
0RN2202F409	Resistor,Metal Film
0RN3571G109	Resistor,Metal Film
0RN3602F409	Resistor,Metal Film
0RN4702F409	Resistor,Metal Film

MODEL PARTS

MODEL: H27H49S	
PART NUMBER	DESCRIPTION
0RN6201F409	Resistor,Metal Film
0RN6801F409	Resistor,Metal Film
0RN7501G409	Resistor,Metal Film
0RRZVTA001B	Resistor,Array
0RS0101H609	Resistor,Metal Oxide Film
0RS0101K607	Resistor,Metal Oxide Film
0RS0121K607	Resistor,Metal Oxide Film
0RS0151K607	Resistor,Metal Oxide Film
0RS0221H609	Resistor,Metal Oxide Film
0RS0221K607	Resistor,Metal Oxide Film
0RS0331K607	Resistor,Metal Oxide Film
0RS0391K607	Resistor,Metal Oxide Film
0RS0472H609	Resistor,Metal Oxide Film
0RS1000H609	Resistor,Metal Oxide Film
0RS1001H609	Resistor,Metal Oxide Film
0RS1003K607	Resistor,Metal Oxide Film
0RS2002K607	Resistor,Metal Oxide Film
0RS2702K607	Resistor,Metal Oxide Film
0RS4700K607	Resistor,Metal Oxide Film
0RX2402L607	Resistor,Metal Oxide Film
0RZZVBK007C	Resistors,Unclassified
0TFIR10003A	FET
0TFON80002A	FET
0TR102009AM	TR,BIPOLAR
0TR126609AA	TR,BIPOLAR
0TR127509AC	TR,BIPOLAR
0TR205900AB	TR,BIPOLAR
0TR319809AA	TR,BIPOLAR
0TR320709AA	Transistor Assembly
0TR322809AA	TR,BIPOLAR
0TR387500AA	TR,BIPOLAR
0TR390609FA	TR,BIPOLAR
0TR733009AA	TR,BIPOLAR
0TR945009AA	TR,BIPOLAR
0TR959009AA	TR,BIPOLAR
0TRKE80046A	TR,BIPOLAR
0TRTH10004A	TR,BIPOLAR
140-275B	Switch, Push Button
140-315A	Switch, Tact
141-018E	Relay, Contact
150-717J	Coil, Choke
150-717K	Coil,Choke
150-C02F	Coil, Choke
150-W01A	Coil,Choke
151-E06A	Transformer, Swithching
156-A01B	Crystal
156-A01T	Crystal
156-A02M	Crystal
162-002B	LED,DIP
163-048D	Thermistor,NTC
163-058D	Thermistor,PTC
164-003G	Varistor
170-844K	Drawing, Assembly
180-A01A	Resistor,Wire Wound
180-C02M	Resistor,Carbon Composition
181-007C	Capacitor,Film,DIP
181-007H	Capacitor,Film,DIP
181-009D	Capacitor,Film,DIP

MODEL: H27H49S	
PART NUMBER	DESCRIPTION
181-009V	Capacito, Drawing
181-010E	Capacitor,Film,DIP
181-010G	Capacitor,Film,DIP
181-010H	Capacitor,Film,DIP
181-013U	Capacitor,Film,DIP
181-014N	Capacitor,Film,DIP
181-014Y	Capacitor,Film,DIP
181-015D	Capacitor,Film,DIP
181-015H	Capacitor,Film,DIP
181-033T	Capacitor,Ceramic,Radial
181-091E	Capacitor,Ceramic,Radial
181-091G	Capacitor,Ceramic,Radial
181-091P	Capacitor,Ceramic,Radial
181-091Q	Capacitor,Ceramic,Radial
181-120K	Capacitor,Ceramic,Radial
3091V00B78G	Cover Assembly
3141VFN003F	Chassis Assembly
3508V00405D	Decor
3581V00036B	Door Assembly
3581V00036G	Door Assembly
3790V00705A	Window
3809V00B05F	Cover Assembly
3828VA0466H	Manual
3846V00119A	Name Plate
387-907J	Harness, Single
387-907K	Harness, Single
387-A03J	Harness, Single
387-A04J	Harness,Single
387-A05A	Harness, Single
387-A05C	Harness, Single
387-A05G	Harness,Single
387-A06C	Harness, Single
387-A06F	Harness, Single
387-A09J	Harness, Single
387-A10C	Harness, Single
387-A15A	Harness, Single
387-J06E	Harness,Single
387-J08K	Harness, Single
387-J10D	Harness,Single
387-J12J	Harness, Single
387-J12K	Harness, Single
5016V20002A	Magnet, Stick Ferrite
5016V20004A	Magnet,Rubber
5020V00755B	Button
5020V00756B	Button
5240VD0003A	Lead Set
5240VE0005A	Harness, Single
6102000004A	Varistor
6140VB0012B	Coil, Choke
6140VC2006D	Coil, Degaussing
6140VE0001T	Coil, Linearity
6140VR0008A	Inductor,Wire Wound,Chip
6170VC0002A	Transformer, Switching
6170VMCA12N	Transformer, SMPS (Coil)
6170VMCA582	Transformer,Switching
6174V-6012M	FBT (Fly Back Transformer)
6200C000026	Filter, Saw
6200C000027	Filter, Ceramic

MODEL PARTS

MODEL: H27H49S	
PART NUMBER	DESCRIPTION
6200C000028	Filter,Unclassified
6201V00002A	Filtes Assembly
6204B62705A	Oscillator, Crystal
6210TCE001A	Filter, Bead
6210VH0001A	Filter,Ferrite Core
6212AA2984B	Crystal
6212AA2988A	Resonator, Crystal
6212AB3004D	Resonator,Ceramic
6212BA3010A	Resonator,Ceramic
6335929007A	CPT, ITC
6400VA0025B	Speaker,Fullrange
6401VC0121A	Speaker Assembly
6401VC0121B	Speaker Assembly
6600Q000070	Switch,Slide
6600R00004A	Switch,Tact
6612VEH001C	Jack,Modular
6613V00004T	Jack,RCA
6620VBC003A	Socket,CRT
6631V25014D	Harness, Single
6631V25035H	Harness, Single
6631V25A04A	Harness, Single
6634D00005A	Conector,RF
6700AT0001A	Tuner,Digital
6700NF0017A	Tuner,Analog
6710V00121D	Remote Controller
6726VV0006J	Receiver Module
6850VA0001B	Cable
6871VMM769D	PCB Assembly, Main
6871VPM079E	PCB Assembly, Power
6871VSMV19D	PCB Assembly, Sub
6871VSMW41B	PCB Assembly, Sub
6910A90008A	Battery, Alkaline
6918VAX002E	Spark Gap, Axial

MODEL: H32H49S	
PART NUMBER	DESCRIPTION
0CC0800K115	Capacitor,Ceramic,Radial
0CC100CK41A	Capacitor,Ceramic,Chip
0CC101CK41A	Capacitor,Ceramic,Chip
0CC101DR41A	Capacitor,Unclassified
0CC1020K405	Capacitor,Unclassified
0CC102CK41A	Capacitor,Ceramic,Chip
0CC200CK41A	Capacitor,Ceramic,Chip
0CC2210K415	Capacitor,Ceramic,Radial
0CC221CK41A	Capacitor,Ceramic,Chip
0CC270CK41A	Capacitor,Ceramic,Chip
0CC331CK41A	Capacitor,Ceramic,Chip
0CC4710K405	Capacitor,Ceramic,Radial
0CC680CK41A	Capacitor,Ceramic,Chip
0CC681CK41A	Capacitor,Ceramic,Chip
0CE1057K636	Capacitor,AL,Radial
0CE105CK636	Capacitor,AL,Radial
0CE105DK618	Capacitor,AL,Radial
0CE105SK6DC	Capacitor,AL,Chip
0CE106BT630	Capacitor,AL,Radial
0CE106DF618	Capacitor,AL,Radial
0CE106DK618	Capacitor,AL,Radial
0CE106SH6DC	Capacitor,AL,Chip
0CE106VF6DC	Capacitor,AL,Chip

MODEL: H32H49S	
PART NUMBER	DESCRIPTION
0CE107DF618	Capacitor,AL,Radial
0CE107DH618	Capacitor,AL,Radial
0CE107DJ618	Capacitor,AL,Radial
0CE107DK618	Capacitor,AL,Radial
0CE107SF6DC	Capacitor,AL,Chip
0CE108BJ618	Capacitor,AL,Radial
0CE108DD618	Capacitor,AL,Radial
0CE108DF618	Capacitor,AL,Radial
0CE108DH618	Capacitor,AL,Radial
0CE108DH630	Capacitor,AL,Radial
0CE108DJ618	Capacitor,AL,Radial
0CE224DK618	Capacitor,AL,Radial
0CE225DK618	Capacitor,AL,Radial
0CE226BK618	Capacitor,AL,Radial
0CE226DF618	Capacitor,AL,Radial
0CE226DK618	Capacitor,AL,Radial
0CE226SF6DC	Capacitor,AL,Chip
0CE227BK618	Capacitor,AL,Radial
0CE227DD618	Capacitor,AL,Radial
0CE227DF618	Capacitor,AL,Radial
0CE227DH618	Capacitor,AL,Radial
0CE227RR6F0	Capacitor,AL,Radial
0CE227SF6DC	Capacitor,AL,Chip
0CE227VF6DC	Capacitor,AL,Chip
0CE228DD618	Capacitor,AL,Radial
0CE228DF618	Capacitor,AL,Radial
0CE335DK618	Capacitor,AL,Radial
0CE336SD6DC	Capacitor,AL,Chip
0CE474DK618	Capacitor,AL,Radial
0CE4753J618	Capacitor,Unclassified
0CE475BK618	Capacitor,AL,Radial
0CE475CK636	Capacitor,AL,Radial
0CE475DK618	Capacitor,AL,Radial
0CE476BK618	Capacitor,AL,Radial
0CE476DF618	Capacitor,AL,Radial
0CE476DH618	Capacitor,AL,Radial
0CE476DK618	Capacitor,AL,Radial
0CE476DR618	Capacitor,AL,Radial
0CE476SF6DC	Capacitor,AL,Chip
0CE476VF6DC	Capacitor,AL,Chip
0CE477BH618	Capacitor,AL,Radial
0CE477DD618	Capacitor,AL,Radial
0CE477DH618	Capacitor,AL,Radial
0CE477RR6F0	Capacitor,AL,Radial
0CE478BH650	Capacitor,AL,Radial
0CE5651K652	Capacitor,AL,Radial
0CF2041UF60	Capacitor,Film,DIP
0CF2241L438	Capacitor,Film,DIP
0CK10201515	Capacitor,Ceramic,Radial
0CK10302932	Capacitor,Unclassified
0CK1030K945	Capacitor,Ceramic,Radial
0CK1030W510	Capacitor,Ceramic,Radial
0CK103CK56A	Capacitor,Ceramic,Chip
0CK103DN56A	Capacitor,Ceramic,Chip
0CK104AK46A	Capacitor,Unclassified
0CK104CF56A	Capacitor,Ceramic,Chip
0CK105CD56A	Capacitor,Ceramic,Chip
0CK2210W515	Capacitor,Ceramic,Radial

MODEL PARTS

MODEL: H32H49S	
PART NUMBER	**DESCRIPTION**
0CK47101515	Capacitor,Ceramic,Radial
0CK56101515	Capacitor,Ceramic,Radial
0CN1020K519	Capacitor,Ceramic,Axial
0CN1030F679	Capacitor,Ceramic,Axial
0CN6810K519	Capacitor,Ceramic,Axial
0CQ1032K439	Capacitor,Film,DIP
0CQ1041N509	Capacitor,Film,DIP
0CQ2231N509	Capacitor,Film,DIP
0CQ3331N509	Capacitor,Film,DIP
0CQ3341N401	Capacitor,Film,DIP
0CQ4731N509	Capacitor,Film,DIP
0CQ5631N409	Capacitor,Film,DIP
0CQZVBK002A	Capacitor, Film, Box
0CQZVBK002C	Capacitor, Film, Box
0CQZVBK002D	Capacitor, Film, Box
0CZZVSB008B	Capacitor,Unclassified
0DD060009AC	Diode, Rectifier
0DD100009AQ	Diode, Rectifier
0DD120000BB	Diode, Rectifier
0DD260000BB	Diode, Bridge
0DD560000AA	Diode Assembly
0DL233309AC	Led, Chip
0DR140039AC	Diode,Rectifier
0DR150009EA	Diode, Rectifier
0DR200009DA	Diode, Rectifier
0DR360000AA	Diode, Rectifier
0DR500000CA	Diode, Switching
0DRGF00069A	Diode,Schottky
0DRGF00104A	Diode, Rectifier
0DRGF00104B	Diode, Rectifier
0DRGF00298A	Diode,Schottky
0DRON00182A	Diode, Rectifier
0DRON00268A	Diode,Schottky
0DSGF00019A	Diode, Switching
0DZ330009DG	Diode,Zener
0DZ510009DB	Diode,Zener
0DZ620009AH	Diode,Zener
0DZ820009AH	Diode,Zener
0DZ910009AJ	Diode,Zener
0FS3001A282	Fuse, Time Delay
0FS5001B51D	Fuse, Time Delay
0IAL241610B	IC, Atmel
0IAL242561B	IC, EEPROM
0ICTMFA001A	IC, Voltage Regulator
0ICTMMI060A	IC,Video Processors
0IFA753307A	IC, Voltage Detector
0IKE358000A	IC, OP Amplifier
0IKE455800E	IC, OP Amplifier
0IKE704200B	IC Assembly
0IKE780500P	IC, Voltage Regulator
0IKE780500Q	IC, Voltage Regulator
0IKE780800J	IC, Voltage Regulator
0ILI817000G	Photo, Coupler
0ILNRJR017A	IC, Video Amplifier
0IMCR02243A	IC,Unclassified
0IMCRAU004A	IC, LDO Voltage Regulator
0IMCRKE002B	IC, LDO Voltage Regulator
0IMCRMN013A	IC, Sound/Audio Processor

MODEL: H32H49S	
PART NUMBER	**DESCRIPTION**
0IMCRMN029B	IC,Unclassified
0IMCRMZ001A	IC,DC,DC Converter
0IMCRSG010A	IC, Transceiver
0IMCRSG011A	IC,Voltage Regulator
0IMCRSJ001B	IC, LDO Voltage Regulator
0IMCRSO007A	IC, Micro Controller
0IMCRSO008A	IC, Graphic Controller
0IMMRHY060B	IC, DDR SDRAM
0IPH488700A	IC, Pre Amplifier
0IPH612000B	IC, Video Amplifier
0IPMGSK019A	IC, PWM Controller
0IPRP00727A	IC, Data Controller
0IRH765700B	IC, Analog Switch
0ISA164500B	IC, Moto Driver
0ISA784500A	IC,Vertical Deflection Circuit
0ISG726300B	IC, Power Amplifier
0ISK665813A	IC,HIC
0ISO208900A	IC, Analog Switch
0ISS781200H	IC, LDO Voltage Regulator
0ISTLFA114A	IC,TTL
0ISTLPH052B	IC, Bus Repeater
0ISTLSG009A	IC,CMOS
0LA0101K119	Inductor,Wire Wound,Axial
0LA0102K119	Inductor,Wire Wound,Axial
0LA0102K139	Inductor,Wire Wound,Axial
0LA0152K119	Inductor,Wire Wound,Axial
0LA0471K119	Inductor,Wire Wound,Axial
0LA0472K119	Inductor,Wire Wound,Axial
0LA0472K139	Inductor,Wire Wound,Axial
0LA0681K119	Inductor,Wire Wound,Axial
0LA0820K119	Inductor,Wire Wound,Axial
0LA1000K119	Inductor,Wire Wound,Axial
0LA1000K139	Inductor,Wire Wound,Axial
0LA1800K119	Inductor,Wire Wound,Axial
0RD0101H609	Resistor,Carbon Film
0RD0102F609	Resistor,Carbon Film
0RD0102H609	Resistor,Carbon Film
0RD0152H609	Resistor,Carbon Film
0RD0271H609	Resistor,Carbon Film
0RD0331F609	Resistor,Carbon Film
0RD0392H609	Resistor,Carbon Film
0RD0472F609	Resistor,Carbon Film
0RD0752F609	Resistor,Carbon Film
0RD1000F609	Resistor,Carbon Film
0RD1001F609	Resistor,Carbon Film
0RD1001H609	Resistor,Carbon Film
0RD1002F609	Resistor,Carbon Film
0RD1003F609	Resistor,Carbon Film
0RD1003H609	Resistor,Carbon Film
0RD1004F609	Resistor,Carbon Film
0RD1202F609	Resistor,Carbon Film
0RD1500F609	Resistor,Carbon Film
0RD1501F609	Resistor,Carbon Film
0RD1501H609	Resistor,Carbon Film
0RD1801F609	Resistor,Carbon Film
0RD1802H609	Resistor,Carbon Film
0RD2001F609	Resistor,Carbon Film
0RD2002F609	Resistor,Carbon Film

MODEL PARTS

MODEL: H32H49S	
PART NUMBER	**DESCRIPTION**
0RD2200F609	Resistor,Carbon Film
0RD2201F609	Resistor,Carbon Film
0RD2202F609	Resistor,Carbon Film
0RD2400H609	Resistor,Carbon Film
0RD2701F609	Resistor,Carbon Film
0RD2701H609	Resistor,Carbon Film
0RD2702F609	Resistor,Carbon Film
0RD2703F609	Resistor,Carbon Film
0RD3300F609	Resistor,Carbon Film
0RD3301F609	Resistor,Carbon Film
0RD3301H609	Resistor,Carbon Film
0RD3302F609	Resistor,Carbon Film
0RD3303F609	Resistor,Carbon Film
0RD3900H609	Resistor,Carbon Film
0RD4700F609	Resistor,Carbon Film
0RD4700H609	Resistor,Carbon Film
0RD4701F609	Resistor,Carbon Film
0RD4702F609	Resistor,Carbon Film
0RD4703F609	Resistor,Carbon Film
0RD4703H609	Resistor,Carbon Film
0RD5100H609	Resistor,Carbon Film
0RD5601F609	Resistor,Carbon Film
0RD5602F609	Resistor,Carbon Film
0RD5603F609	Resistor,Carbon Film
0RD6200H609	Resistor,Carbon Film
0RD6201F609	Resistor,Carbon Film
0RD6203F609	Resistor,Carbon Film
0RD6800H609	Resistor,Carbon Film
0RD6801F609	Resistor,Carbon Film
0RD6801H609	Resistor,Carbon Film
0RD7500F609	Resistor,Carbon Film
0RD8201F609	Resistor,Carbon Film
0RF0101K607	Resistor,Fusible
0RF0470K607	Resistor,Fusible
0RF0471H609	Resistor,Fusible
0RF0561H609	Resistor,Fusible
0RF1000H609	Resistor,Fusible
0RKZVTA001C	Resistor,Metal Film
0RMZVBK002D	Resistor,Cement
0RN0271J607	Resistor,Metal Film
0RN1002F409	Resistor,Metal Film
0RN1623G109	Resistor,Metal Film
0RN2201G509	Resistor,Metal Film
0RN2202F409	Resistor,Metal Film
0RN3571G109	Resistor,Metal Film
0RN3602F409	Resistor,Metal Film
0RN6201F409	Resistor,Metal Film
0RN6801F409	Resistor,Metal Film
0RN7501G409	Resistor,Metal Film
0RRZVTA001B	Resistor,Array
0RS0101H609	Resistor,Metal Oxide Film
0RS0121K607	Resistor,Metal Oxide Film
0RS0151K607	Resistor,Metal Oxide Film
0RS0221H609	Resistor,Metal Oxide Film
0RS0221K607	Resistor,Metal Oxide Film
0RS0391K607	Resistor,Metal Oxide Film
0RS0472H609	Resistor,Metal Oxide Film
0RS1000H609	Resistor,Metal Oxide Film

MODEL: H32H49S	
PART NUMBER	**DESCRIPTION**
0RS1001H609	Resistor,Metal Oxide Film
0RS1003K607	Resistor,Metal Oxide Film
0RS1802K607	Resistor,Metal Oxide Film
0RS2202K607	Resistor,Metal Oxide Film
0RS2702K607	Resistor,Metal Oxide Film
0RS4700K607	Resistor,Metal Oxide Film
0RS6800H609	Resistor,Metal Oxide Film
0RX2402L607	Resistor,Metal Oxide Film
0RZZVBK007A	Resistors,Unclassified
0TFIR10003A	FET
0TFON80002A	FET
0TR102009AM	TR, Bipolar
0TR126609AA	TR, Bipolar
0TR127509AC	TR, Bipolar
0TR205900AB	TR, Bipolar
0TR319809AA	TR, Bipolar
0TR320709AA	Transistor Assembly
0TR322809AA	TR, Bipolar
0TR387500AA	TR, Bipolar
0TR390609FA	TR, Bipolar
0TR471000AA	TR, Bipolar
0TR733009AA	TR, Bipolar
0TR945009AA	TR, Bipolar
0TR959009AA	TR, Bipolar
0TRKE80046A	TR, Bipolar
0TRTH10004A	TR, Bipolar
140-275B	Switch, Push Button
140-315A	Switch, Tact
141-018E	Relay, Contact
150-717J	Coil, Choke
150-717K	Coil,Choke
150-C02F	Coil, Choke
150-W01A	Coil,Choke
151-E06A	Transformer, Switching
156-A01B	Crystal
156-A01T	Crystal
156-A02M	Crystal
162-002B	Led, DIP
163-048D	Thermistor,NTC
164-003D	Varistor
170-797U	Drawing, Assembly
180-A01A	Resistor,Wire Wound
180-C02M	Resistor,Carbon Composition
181-007C	Capacitor,Film,DIP
181-007H	Capacitor,Film,DIP
181-009D	Capacitor,Film,DIP
181-009V	Capacitor, Drawing
181-010G	Capacitor,Film,DIP
181-013U	Capacitor,Film,DIP
181-014B	Capacitor,Film,DIP
181-014N	Capacitor,Film,DIP
181-014Y	Capacitor,Film,DIP
181-015H	Capacitor,Film,DIP
181-033T	Capacitor,Ceramic,Radial
181-091G	Capacitor,Ceramic,Radial
181-091P	Capacitor,Ceramic,Radial
181-091Q	Capacitor,Ceramic,Radial
181-091V	Capacitor,Ceramic,Radial

MODEL PARTS

MODEL: H32H49S	
PART NUMBER	**DESCRIPTION**
181-120K	Capacitor,Ceramic,Radial
3091V00496K	Cover Assembly
3141VFN003G	Chassis Assembly
3508V00397E	Decor
3581V00037C	Door Assembly
3581V00037M	Door Assembly
3790V00703A	Window
3809V00343E	Cover Assembly
3846V00119A	Name Plate
387-907J	Harness, Single
387-907K	Harness, Single
387-A03J	Harness, Single
387-A04J	Harness,Single
387-A05A	Harness, Single
387-A05C	Harness, Single
387-A05G	Harness,Single
387-A06F	Harness, Single
387-A09J	Harness, Single
387-A10C	Harness, Single
387-A15A	Harness, Single
387-J06D	Cable & Wire,Unclassified
387-J08K	Harness, Single
387-J10B	Harness, Single
387-J12J	Harness, Single
387-J12K	Harness, Single
5016V20002A	Magnet, Stick Ferrite
5016V20004A	Magnet,Rubber
5240VD0003A	Lead Set
5240VE0005A	Harnees, Single
6140VB0012B	Coil, Choke
6140VC2006F	Coil, Degaussing
6140VE0001T	Coil, Linearity
6140VR0008A	Inductor,Wire Wound,Chip
6170VC0002A	Transformer, Switching
6170VMCA12P	Transformer,Switching
6170VMCA582	Transformer,Switching
6174V-6012N	Transformer, BT
6200C000026	Filter, Saw
6200C000027	Filter, Ceramic
6200C000028	Filter,Unclassified
6201V00002A	Filter Assembly
6204B62705A	Oscillator, Crystal
6210TCE001A	Filter, Bead
6210VH0001A	Filter,Ferrite Core
6212AA2984B	Crystal
6212AA2988A	Resonator, Crystal
6212AB3004D	Resonator,Ceramic
6212BA3010A	Resonator,Ceramic
6322B62206A	Thermistor,PTC
6335V34008B	CPT Assembly
6400VA0025B	Speaker,Fullrange
6401VC0N04E	Speaker Assembly
6401VC0N05E	Speaker Assembly
6600Q000070	Switch,Slide
6600R00004A	Switch,Tact
6612VBH001B	Jack,DIN
6612VEH001C	Jack,Modular
6613V00004T	Jack,RCA

MODEL: H32H49S	
PART NUMBER	**DESCRIPTION**
6613V00027A	Connector,Unclassified
6613V00028A	Connector,Unclassified
6620VBD002A	Socket,CRT
6631V25014D	Harness, Single
6631V25035H	Harness, Single
6631V25A04A	Harness, Single
6700AT0001A	Tuner,Digital
6700NF0017A	Tuner,Analog
6726VV0006J	Receiver Module
6850VA0002A	Cable,Assembly
68719SMJ78C	PCB Assembly, Sub
68719SMK99A	PCB Assembly, Sub
68719SML00A	PCB Assembly, Sub
6871VMM769E	PCB Assembly, Main
6871VPM079F	PCB Assembly, Power
6871VSMV19E	PCB Assembly, Sub
6871VSMV20G	PCB Assembly, Sub
6871VSMV33E	PCB Assembly, Sub
6871VSMV75B	PCB Assembly, Sub
6871VSMW20J	PCB Assembly, Sub
6871VSMW41B	PCB Assembly, Sub
6918VAX002E	Spark Gap, Axial

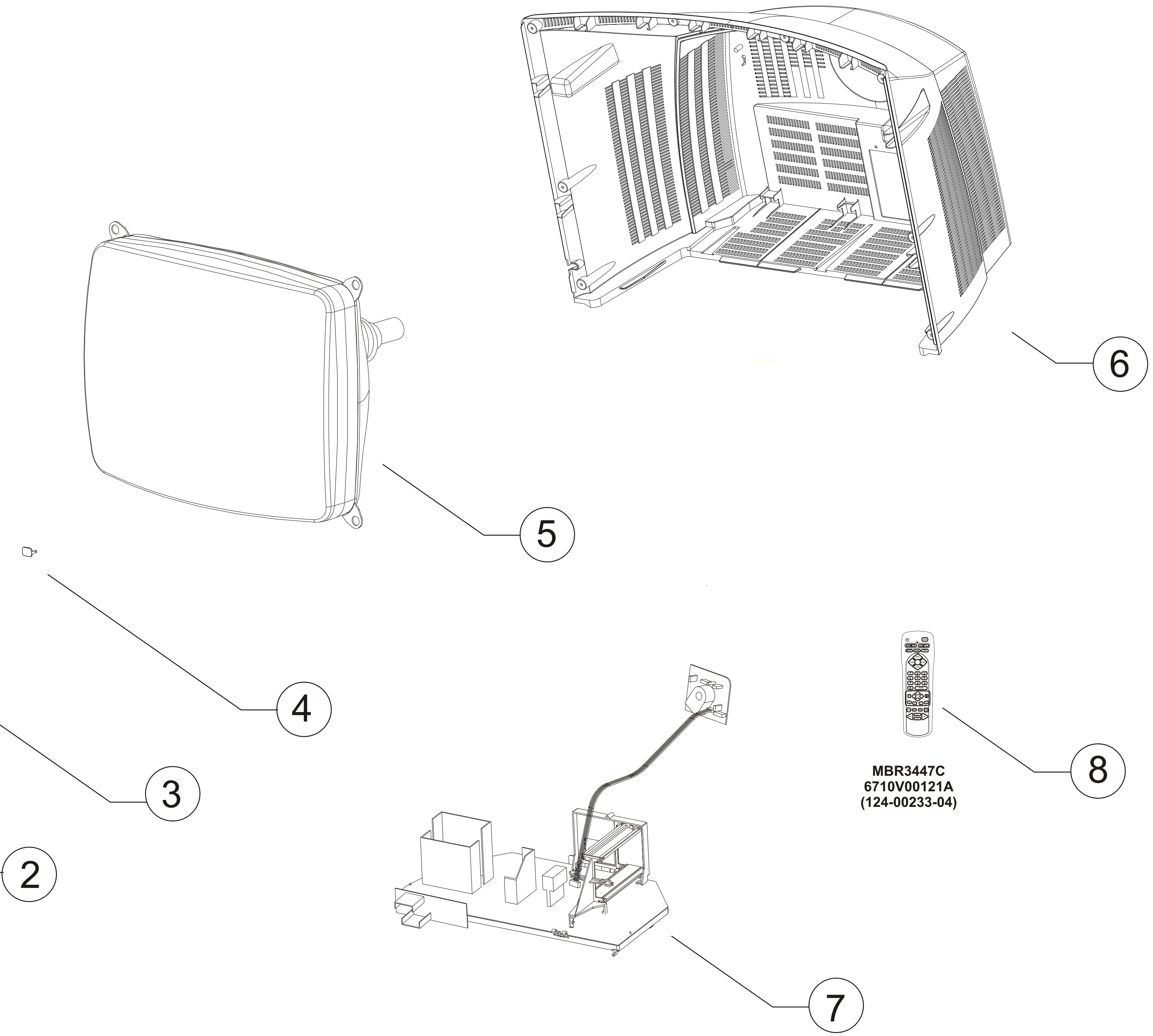
All FC models level repair only. Parts contact information is below.

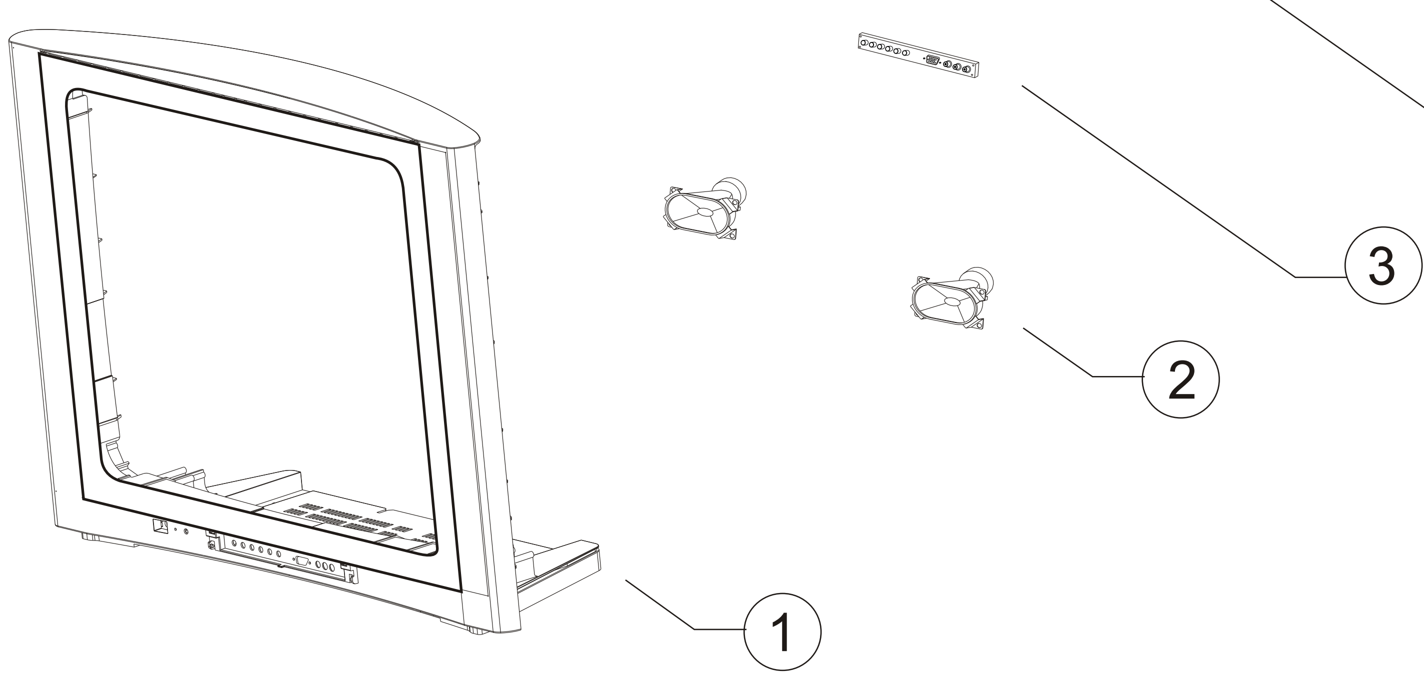
Voice: 1-888-3-ZENITH
Fax: 1-888-6-ZENITH
Mail: Zenith National Parts
201 James Record Road
Huntsville, AL 35824-1513

H27G48S Exploded View

1	2	3	4	5	6	7	8	9	10

REF	DESCRIPTION	H27G48S
1	CABINET ASSEMBLY	3091V00B78G
2	SPEAKER,FULLRANGE	6400VA0025B
3	CHASSIS ASSEMBLY KEYBOARD	3141VSNC61H
4	WINDOW	3790V00705A
5	CPT ASSEMBLY (CRT)	6335V29025J
6	BACK COVER ASSEMBLY	3809V00B05F
7	CHASSIS ASSEMBLY MAIN/SMPS	3141VFN003A
8	REMOTE CONTROLLER	6710V00121A





H32G48S Exploded View

1	2	3	4	5	6	7	8	9	10

REF	DESCRIPTION	H32G48S
1	CABINET ASSEMBLY	3091V00496K
2	SPEAKER, FULLRANGE	6400VA0025B
3	CHASSIS ASSEMBLY KEYBOARD	3141VSNC61H
4	WINDOW	3790V00703A
5	CPT ASSEMBLY (CRT)	6335V34006A
6	BACK COVER ASSEMBLY	3809V00343E
7	CHASSIS ASSEMBLY MAIN/SMPS	3141VFN003C
8	REMOTE CONTROLLER	6710V00121A

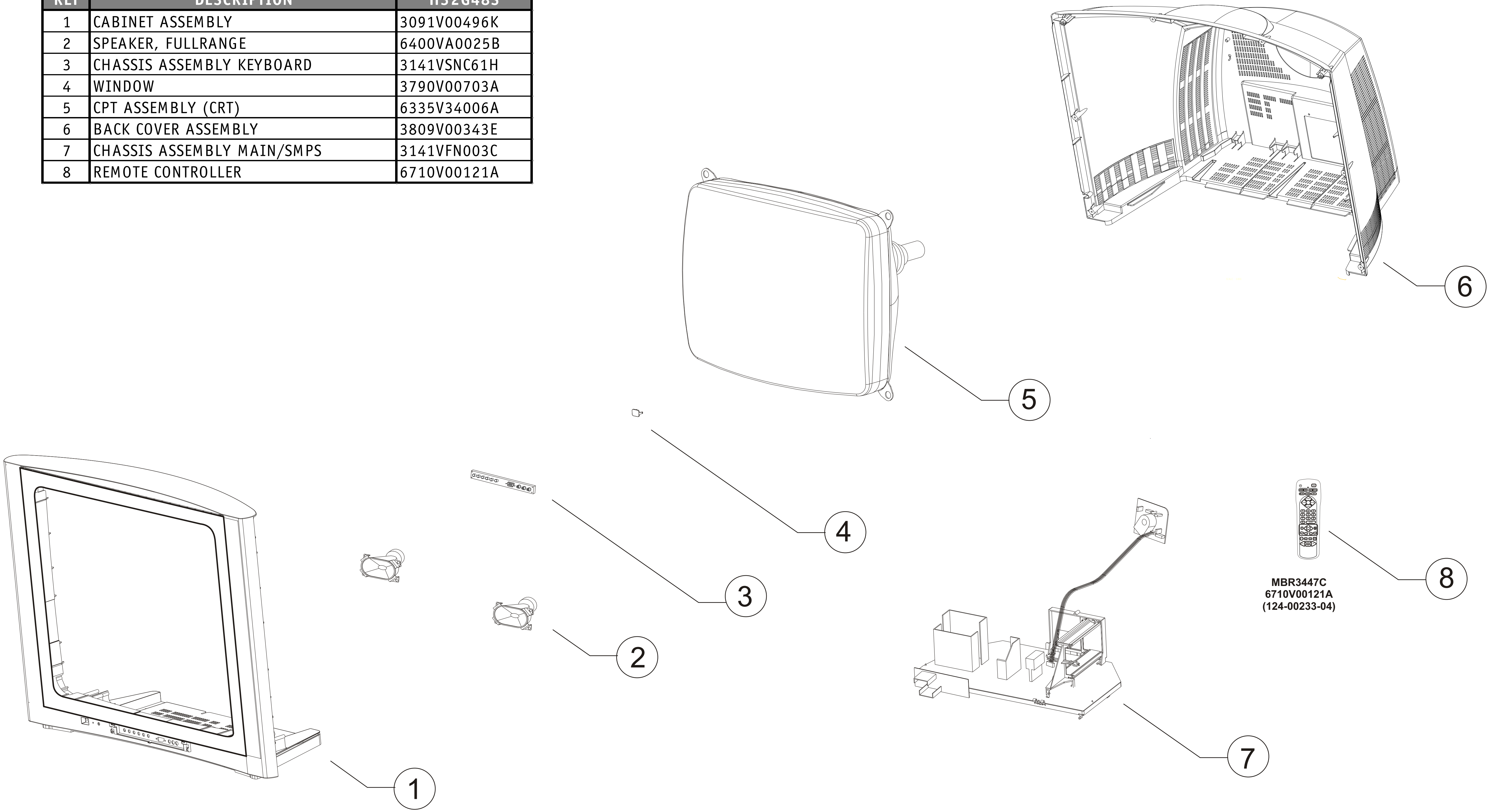
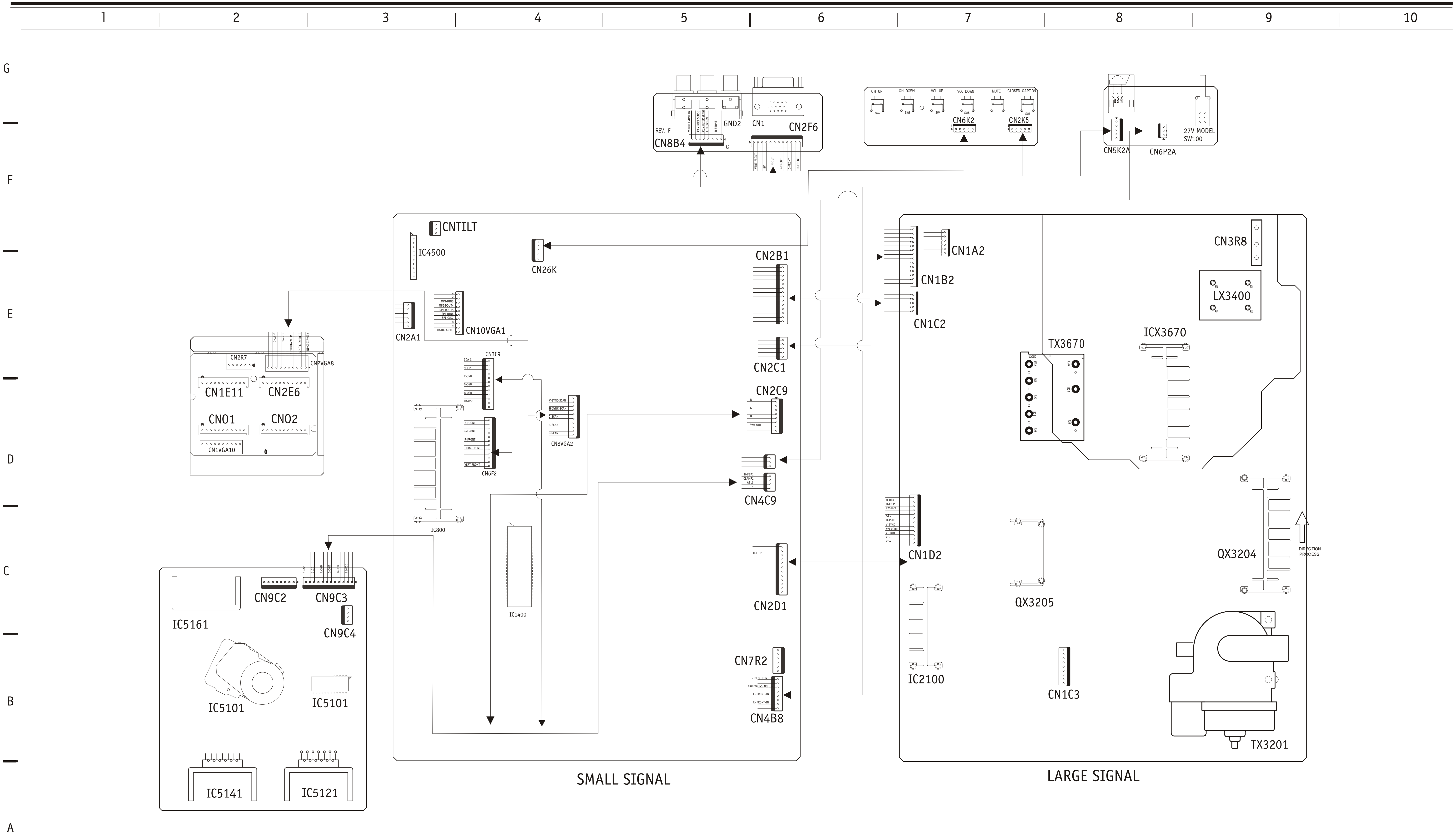
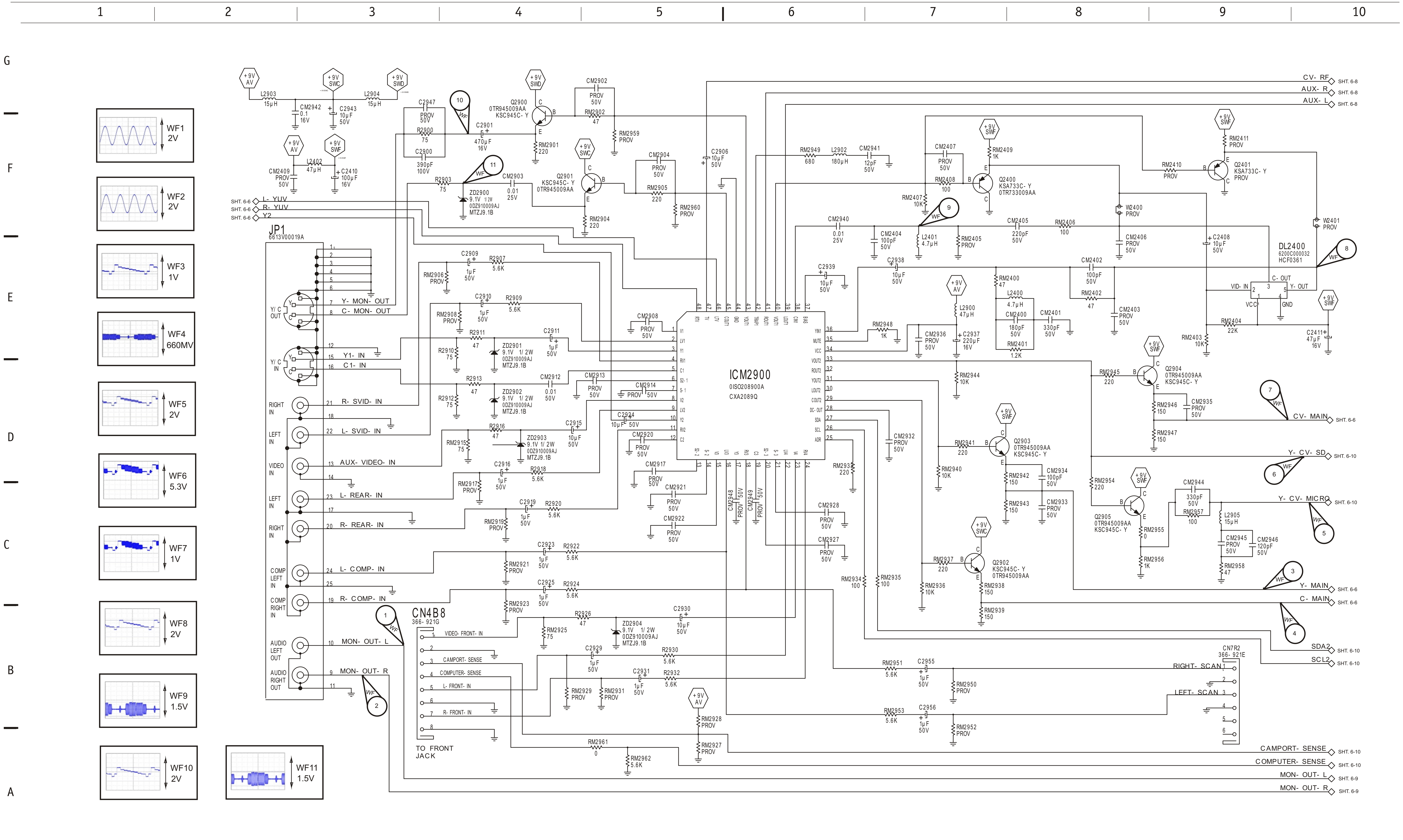


Diagram Interconnect Circuit

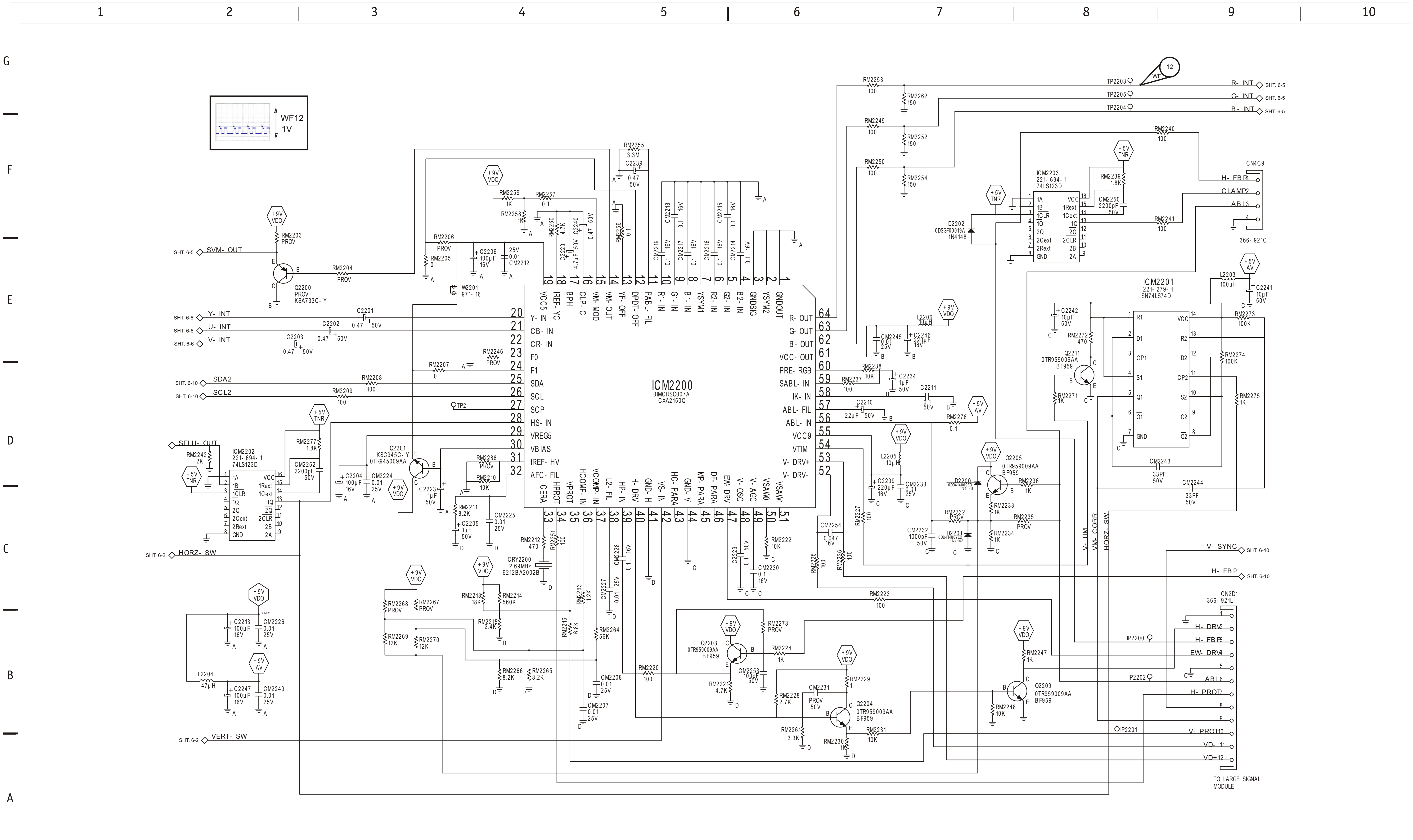


AV Switch

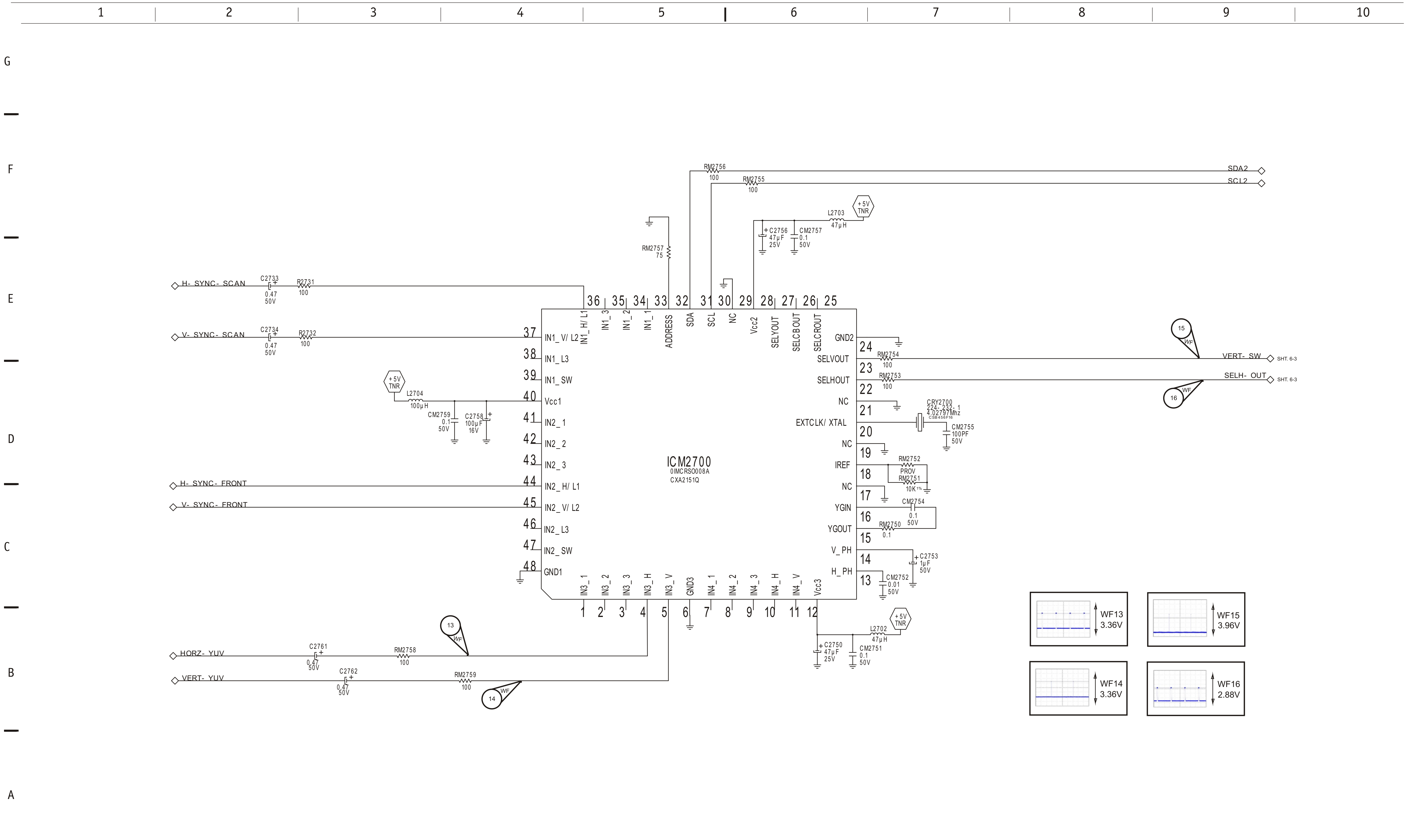


WF1 2V
WF2 2V
WF3 1V
WF4 660MV
WF5 2V
WF6 5.3V
WF7 1V
WF8 2V
WF9 1.5V
WF10 2V
WF11 1.5V
JP1
6613V00019A
ICM2900
0ISO208900A
CXA2089Q
CN4B8
366- 921G
TO FRONT JACK
CN7R2
366- 921E
DL2400
Y/ C OUT
Y/ C IN
Y- MON- OUT
C- MON- OUT
Y1- IN
C1- IN
R- SVID- IN
L- SVID- IN
AUX- VIDEO- IN
L- REAR- IN
R- REAR- IN
L- COMP- IN
R- COMP- IN
MON- OUT- L
MON- OUT- R
VIDEO- FRONT- IN
CAMPORT- SENSE
COMPUTER- SENSE
L- FRONT- IN
R- FRONT- IN
L- YUV
R- YUV
Y2
CV- RF
AUX- R
AUX- L
CV- MAIN
Y- CV- SD
Y- CV- MICRO
Y- MAIN
C- MAIN
SDA2
SCL2
RIGHT- SCAN
LEFT- SCAN
CAMPORT- SENSE
COMPUTER- SENSE
MON- OUT- L
MON- OUT- R

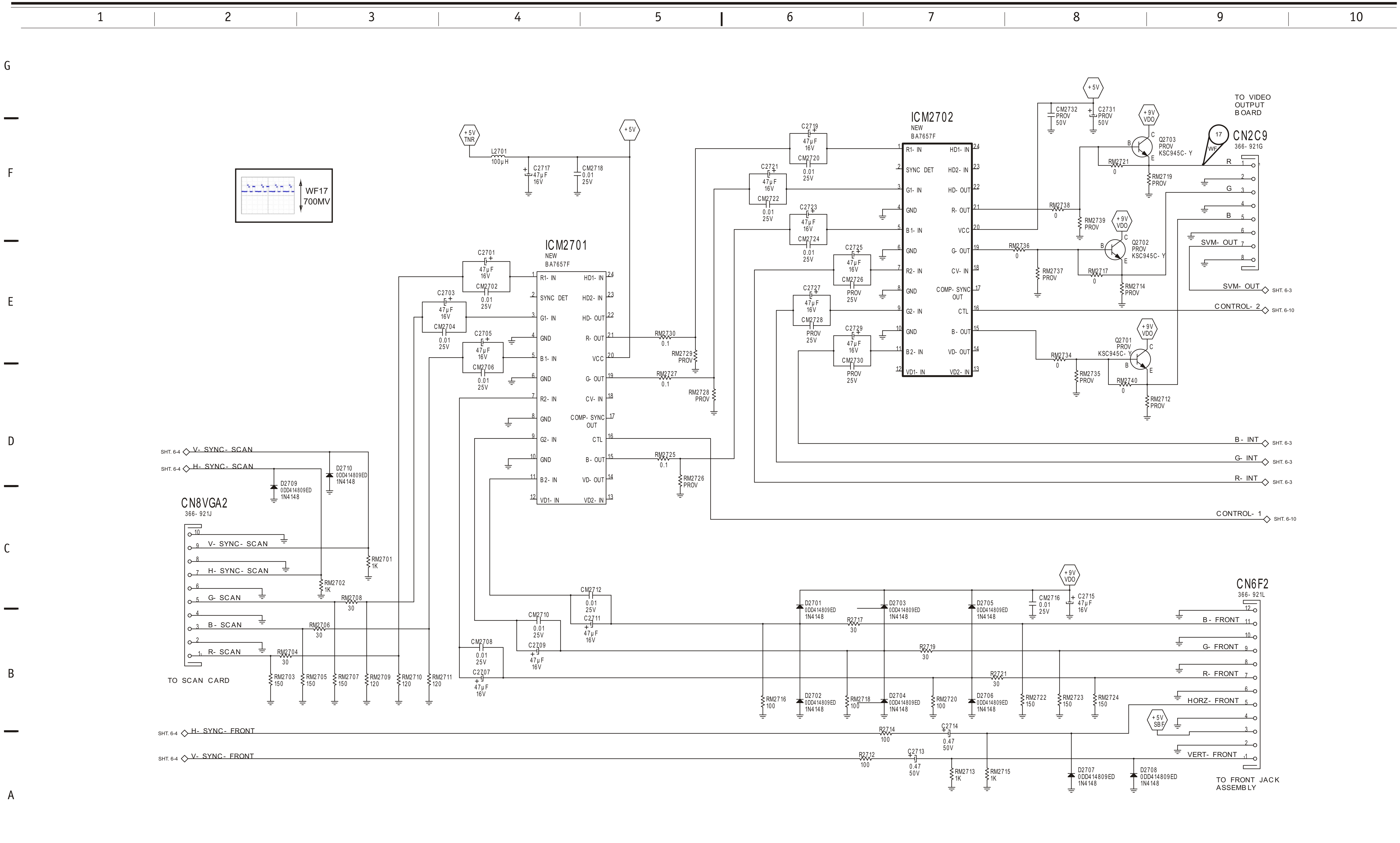
Video Processor



Video Sync Processor



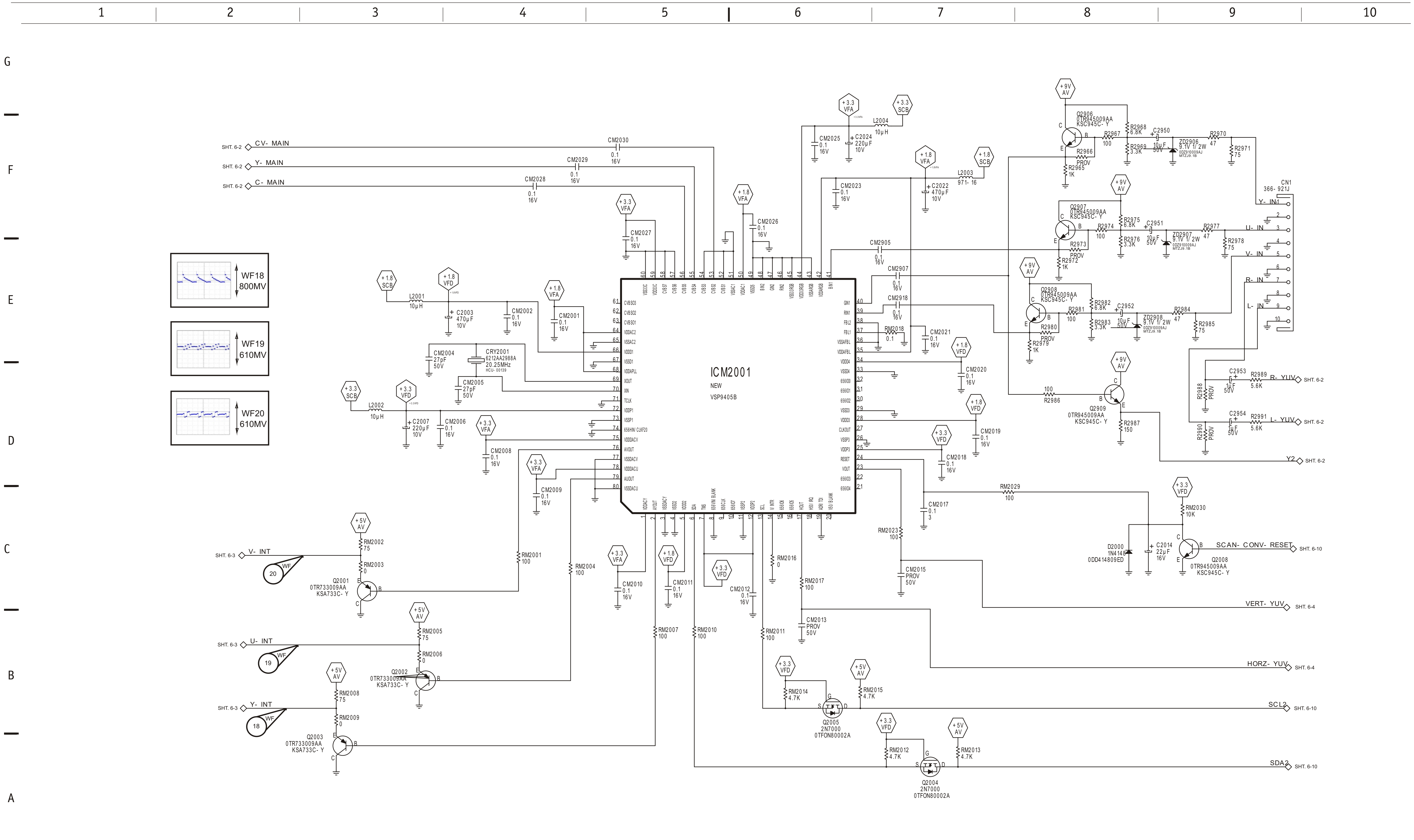
RGB Switcher



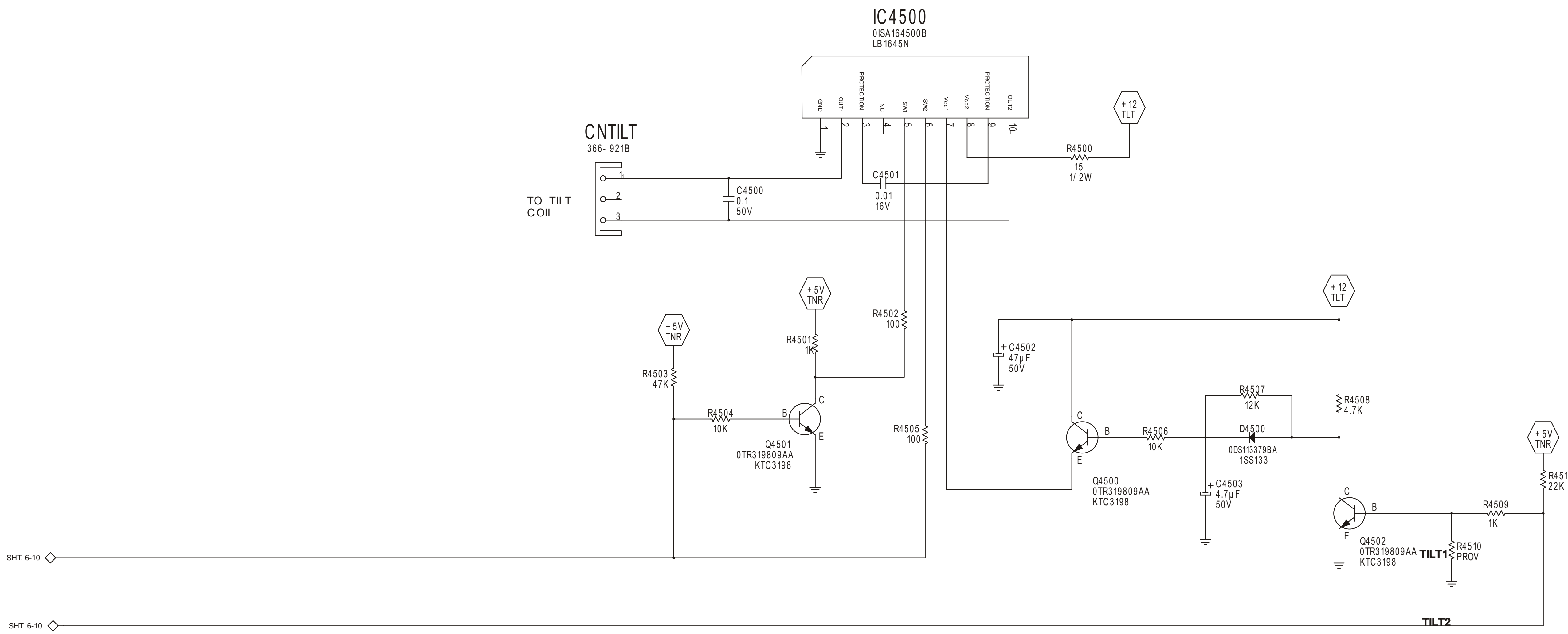
CRITICAL SAFETY COMPONENTS ARE IDENTIFIED BY THE LETTER "X" IN THEIR COMPONENTS DESIGNATORS. REPLACE ONLY WITH PART NUMBERS SPECIFIED.

ALL COMPONENTS WITH "M" IN THE DESIGNATOR ARE A SURFACE MOUNTED COMPONENT.

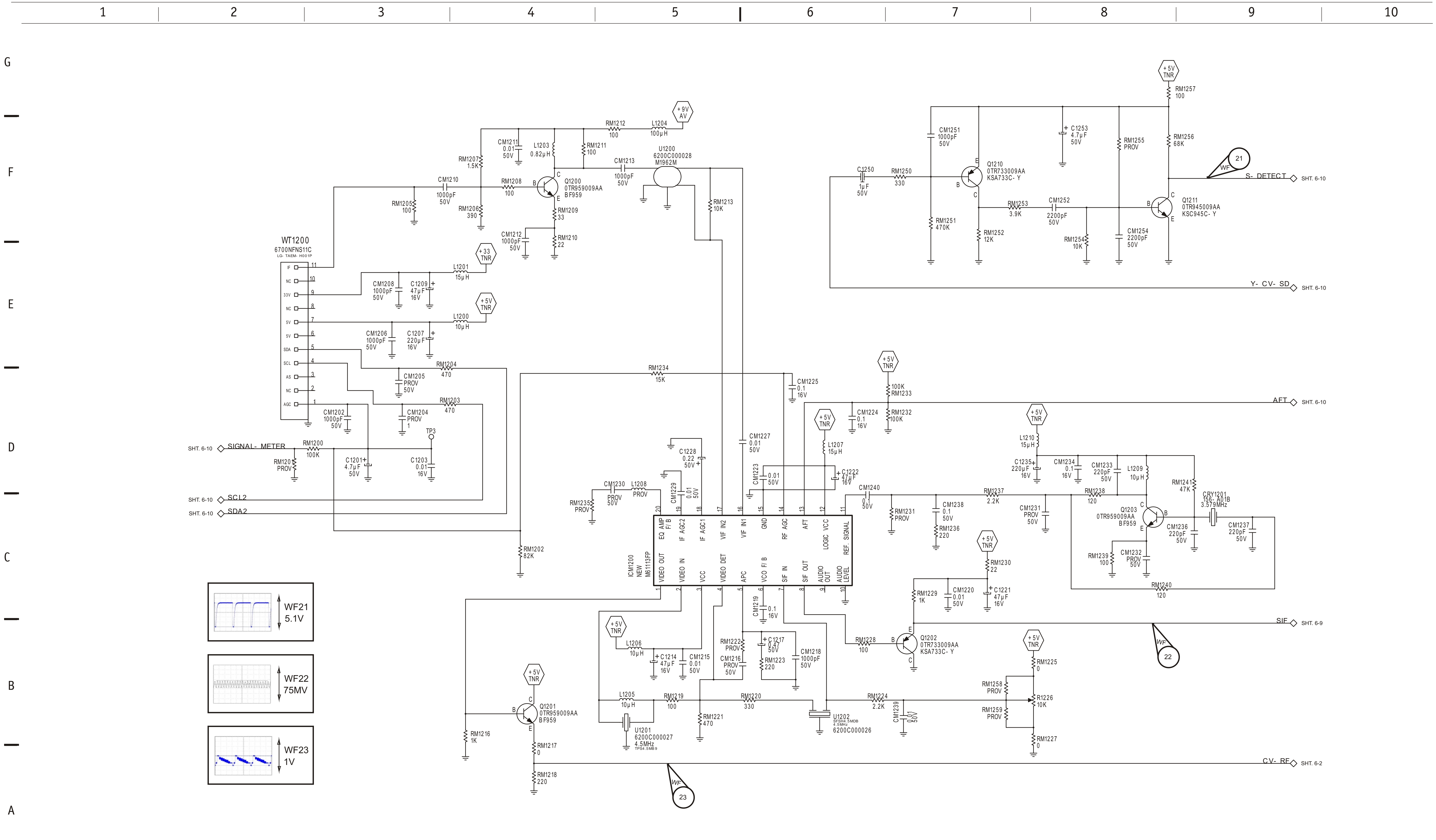
Scan Converter



Tilt Circuit

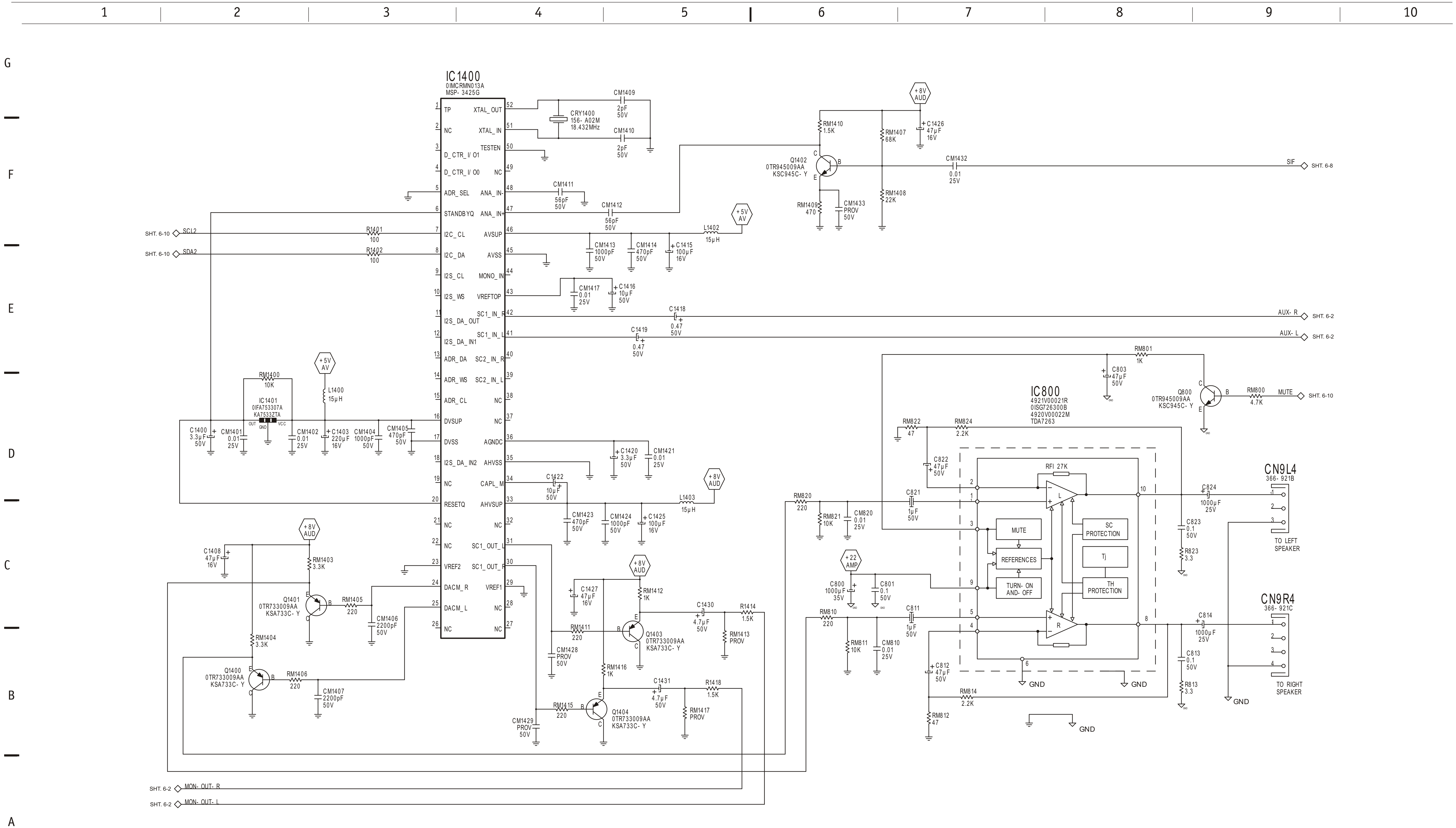


Tuner



1 2 3 4 5 6 7 8 9 10
G F E D C B A
WT1200
6700NFNS11C
U1200
6200C000028
M1962M
Q1200
0TR959009AA
BF959
Q1201
0TR959009AA
BF959
Q1202
0TR733009AA
KSA733C- Y
Q1203
0TR959009AA
BF959
Q1210
0TR733009AA
KSA733C- Y
Q1211
0TR945009AA
KSC945C- Y
ICM1200
NEW
M61113FP
U1201
6200C000027
4.5MHz
U1202
6200C000026
CRY1201
3.579MHz
+9V AV
+33 TNR
+5V TNR
SHT. 6-10 SIGNAL- METER
SHT. 6-10 SCL2
SHT. 6-10 SDA2
S- DETECT SHT. 6-10
Y- CV- SD SHT. 6-10
AFT SHT. 6-10
SIF SHT. 6-9
CV- RF SHT. 6-2
TP3
WF21 5.1V
WF22 75MV
WF23 1V

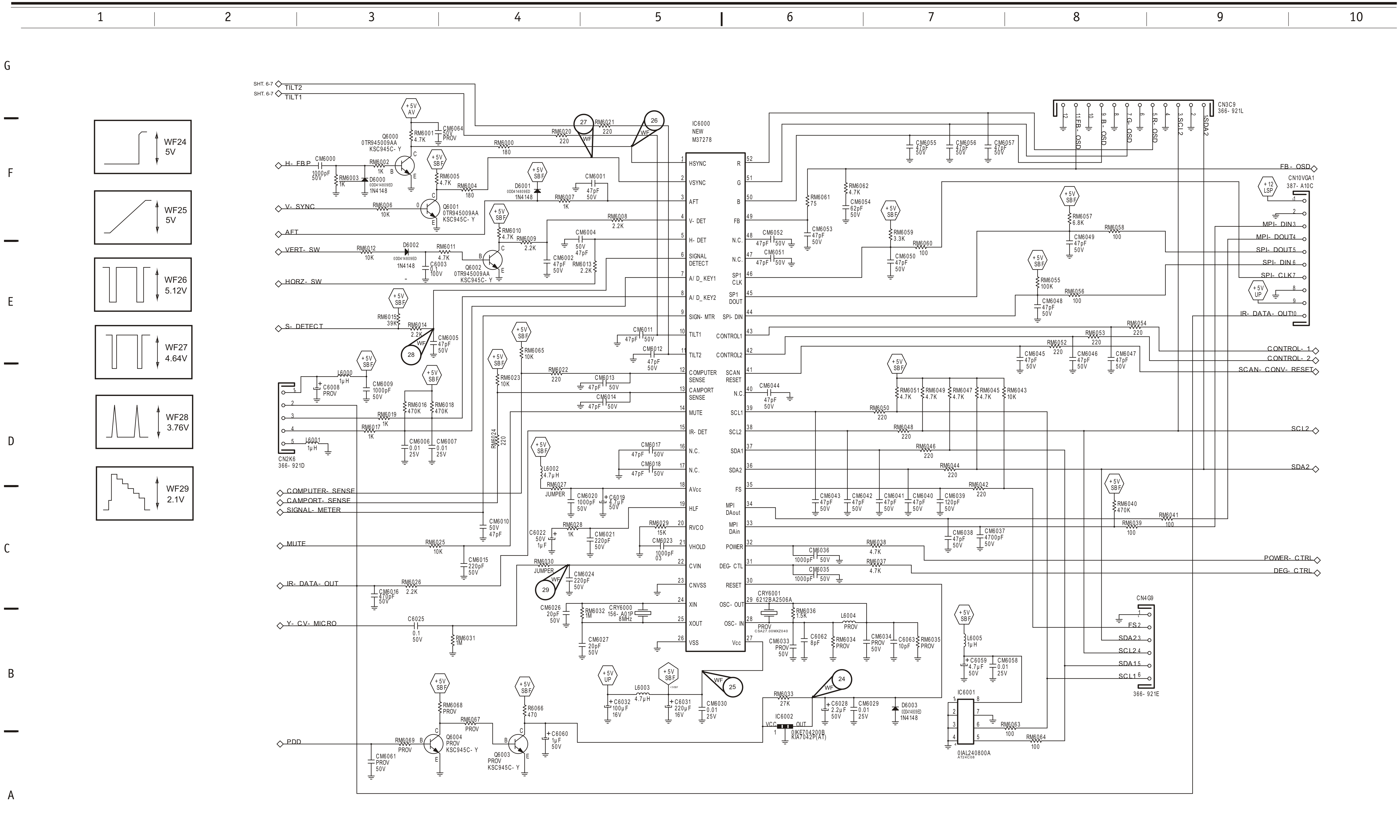
Audio Processor



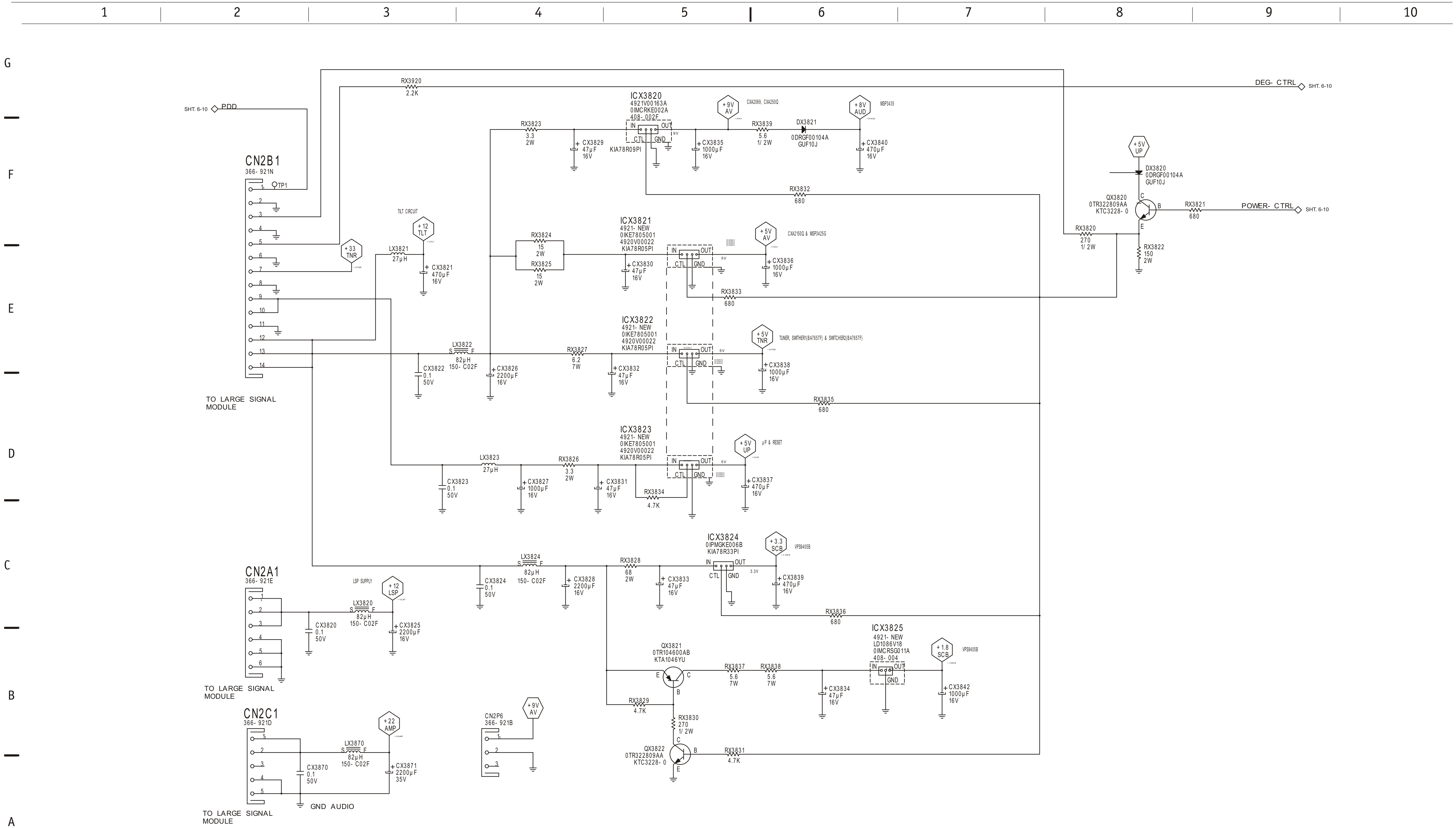
CRITICAL SAFETY COMPONENTS ARE IDENTIFIED BY THE LETTER "X" IN THEIR COMPONENTS DESIGNATORS. REPLACE ONLY WITH PART NUMBERS SPECIFIED.

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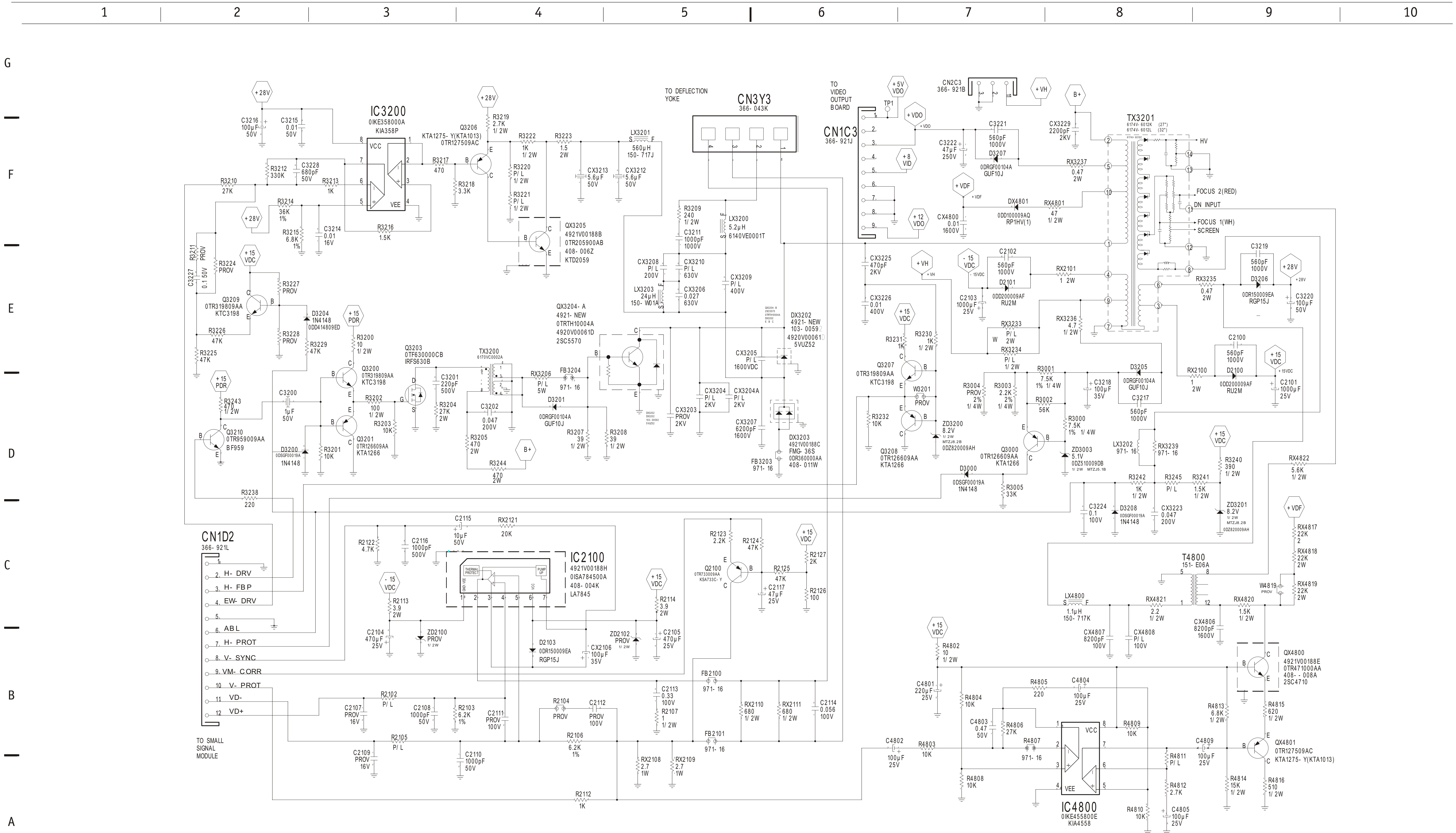
Microcontroller



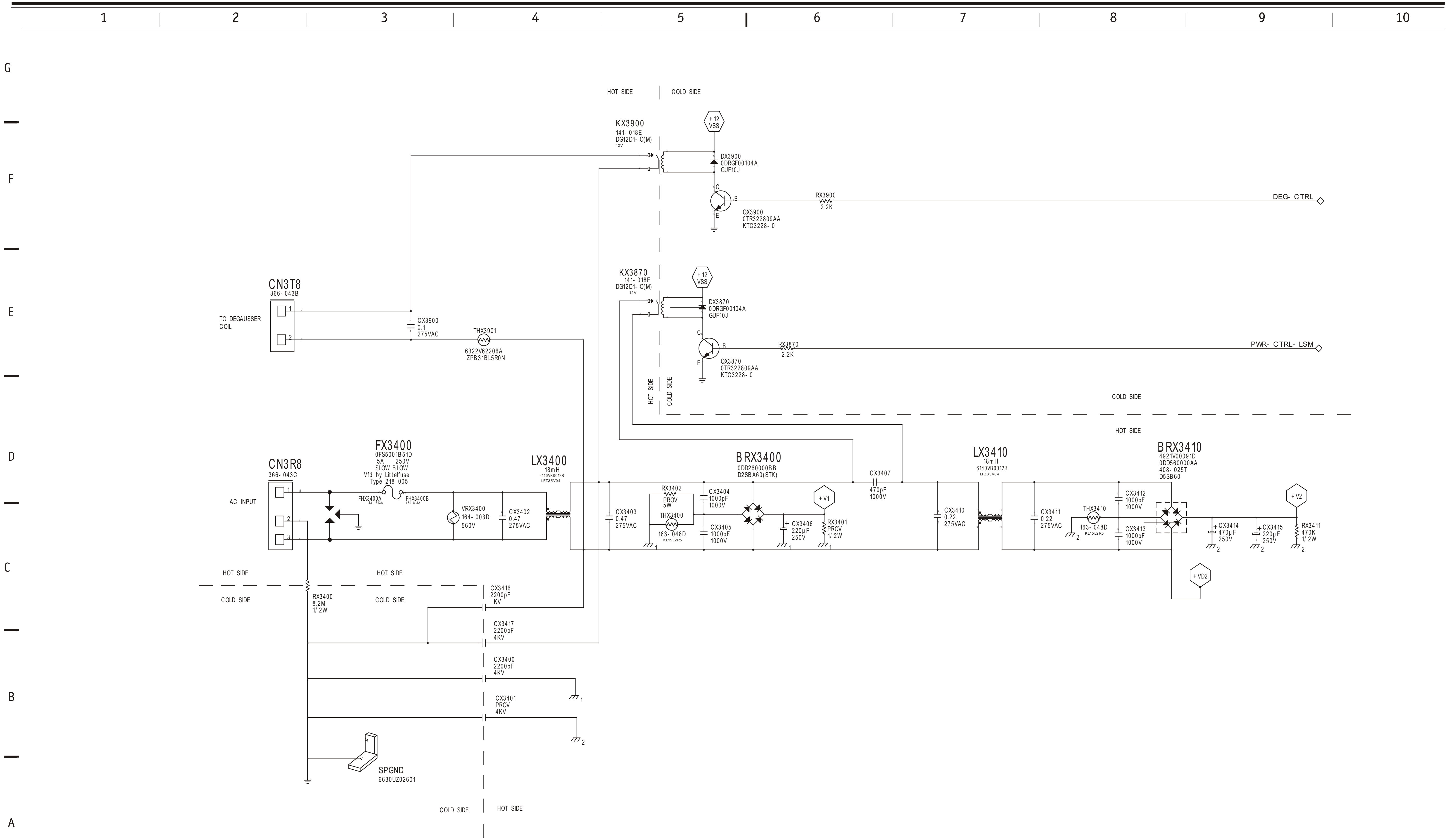
Power Supply



Horizontal & Vertical Deflection

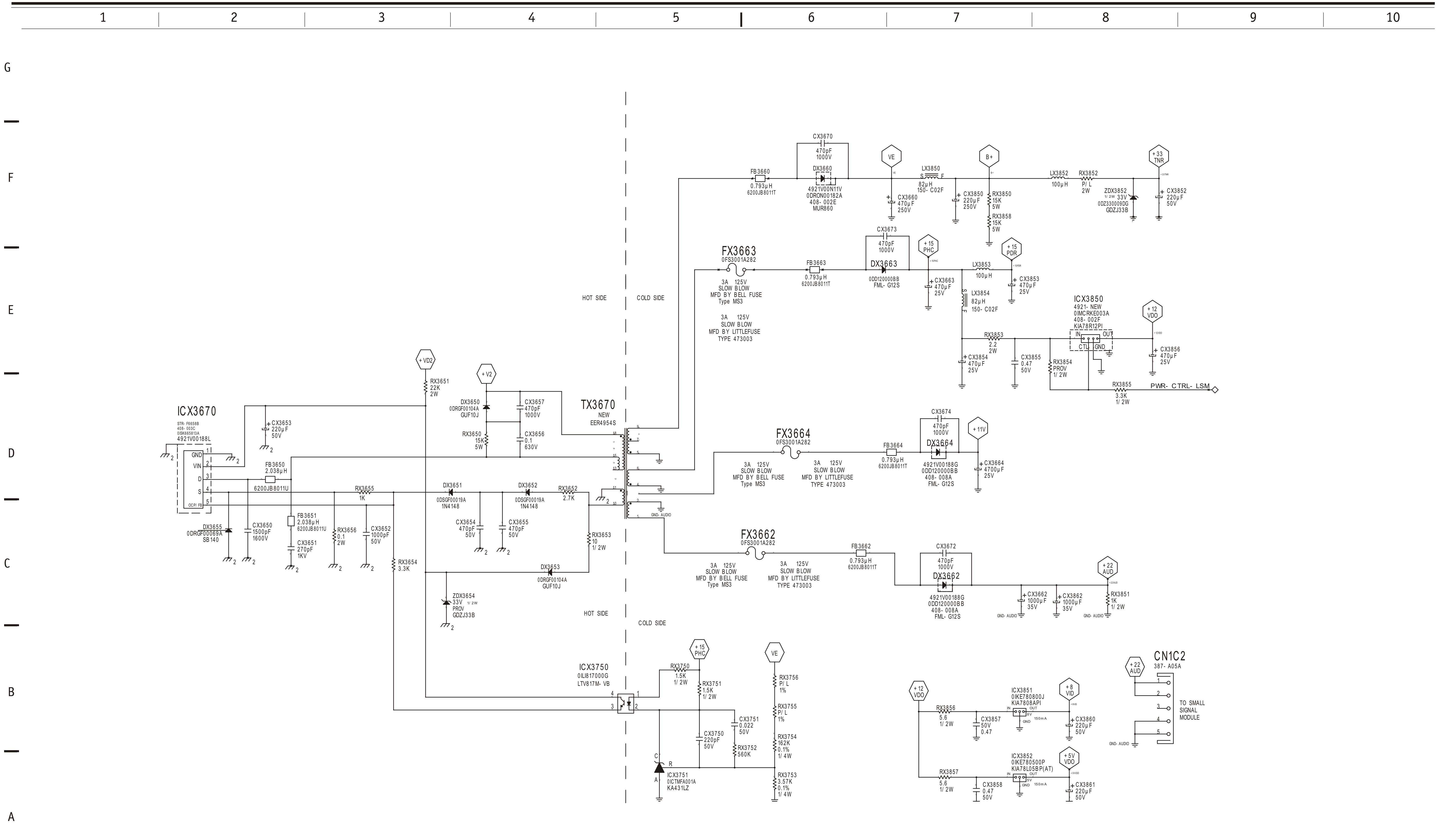


AC Input

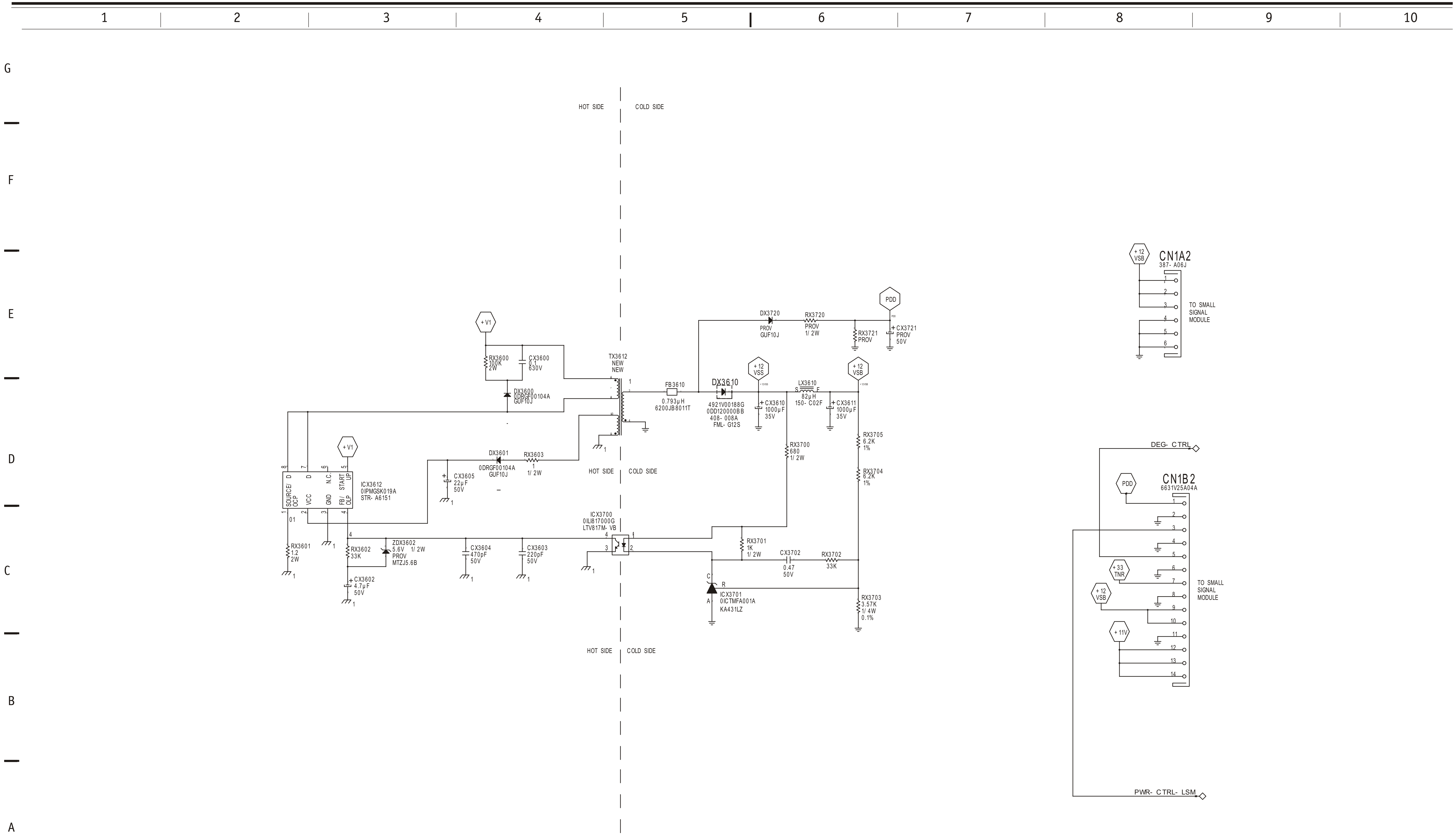


HOT SIDE
COLD SIDE
KX3900
141- 018E
DG12D1- O(M)
12V
+12 VSS
DX3900
0DRGF00104A
GUF10J
QX3900
0TR322809AA
KTC3228- 0
RX3900
2.2K
DEG- CTRL
KX3870
141- 018E
DG12D1- O(M)
12V
DX3870
0DRGF00104A
GUF10J
QX3870
0TR322809AA
KTC3228- 0
RX3870
2.2K
PWR- CTRL- LSM
CN3T8
366- 043B
TO DEGAUSSER COIL
CX3900
0.1
275VAC
THX3901
6322V62206A
ZPB31BL5R0N
CN3R8
366- 043C
AC INPUT
FX3400
0FS5001B51D
5A 250V
SLOW BLOW
Mfd by Littelfuse
Type 218 005
FHX3400A
FHX3400B
VRX3400
164- 003D
560V
CX3402
0.47
275VAC
LX3400
18mH
6140VB0012B
LFZ35V04
CX3403
0.47
275VAC
RX3402
PROV
5W
THX3400
163- 048D
KL15L2R5
CX3404
1000pF
1000V
CX3405
1000pF
1000V
BRX3400
0DD260000BB
D2SBA60(STK)
+V1
CX3406
220µF
250V
RX3401
PROV
1/ 2W
CX3407
470pF
1000V
CX3410
0.22
275VAC
LX3410
18mH
6140VB0012B
LFZ35V04
CX3411
0.22
275VAC
THX3410
163- 048D
KL15L2R5
CX3412
1000pF
1000V
CX3413
1000pF
1000V
BRX3410
4921V00091D
0DD560000AA
408- 025T
D5SB60
+V2
CX3414
470µF
250V
CX3415
220µF
250V
RX3411
470K
1/ 2W
+VD2
RX3400
8.2M
1/ 2W
CX3416
2200pF
KV
CX3417
2200pF
4KV
CX3400
2200pF
4KV
CX3401
PROV
4KV
SPGND
6630UZ02601

Switched PWS

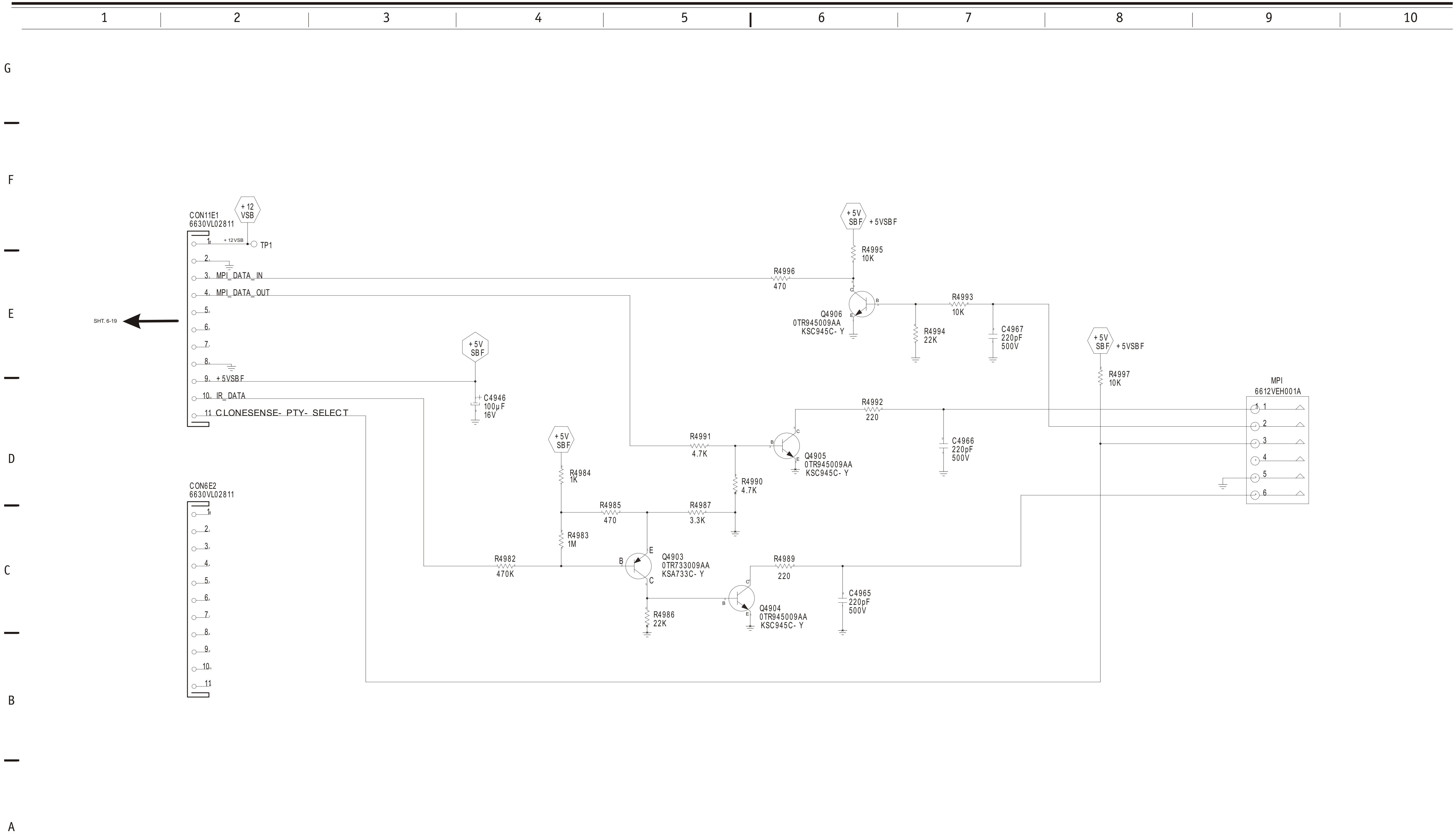


Standby PWS

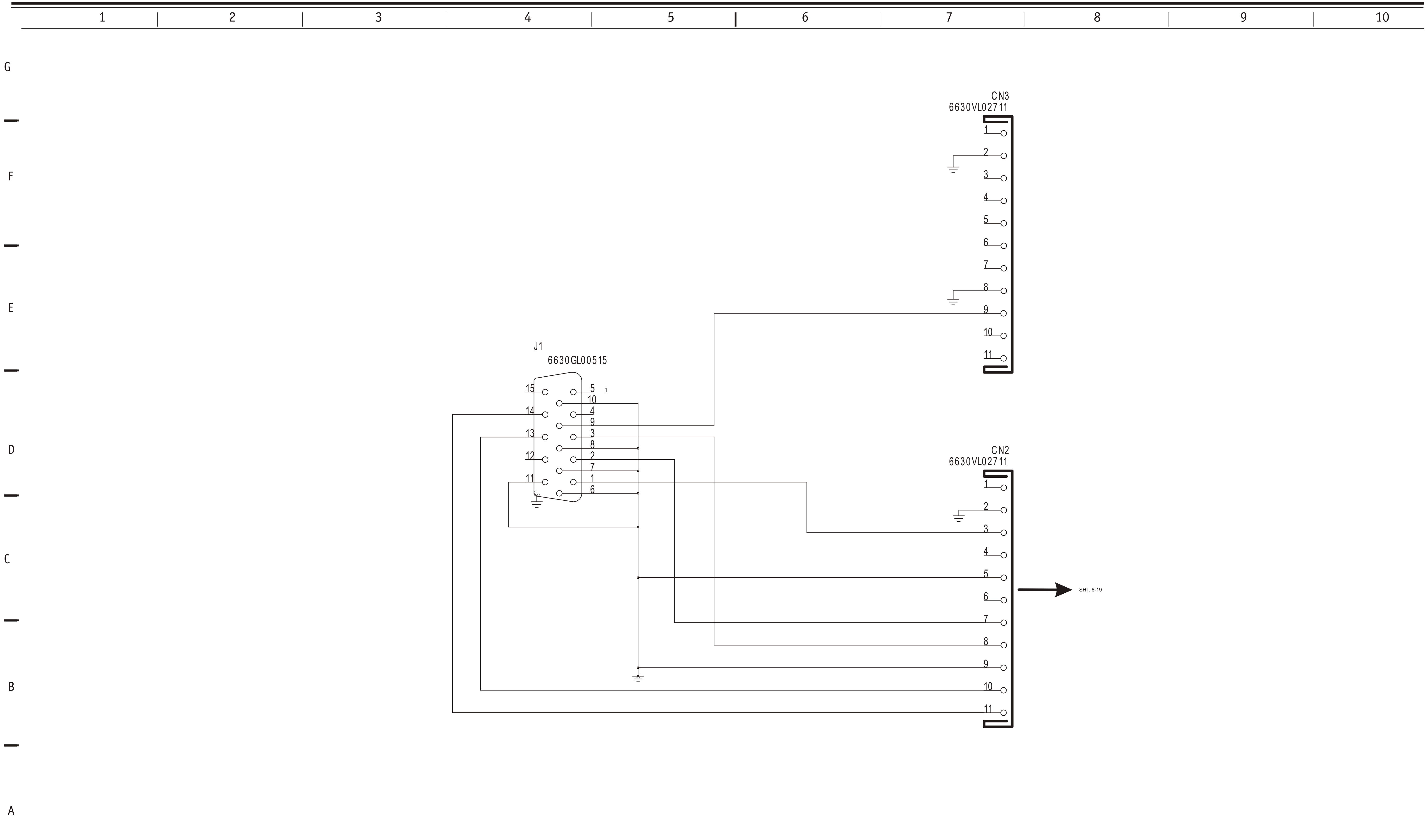


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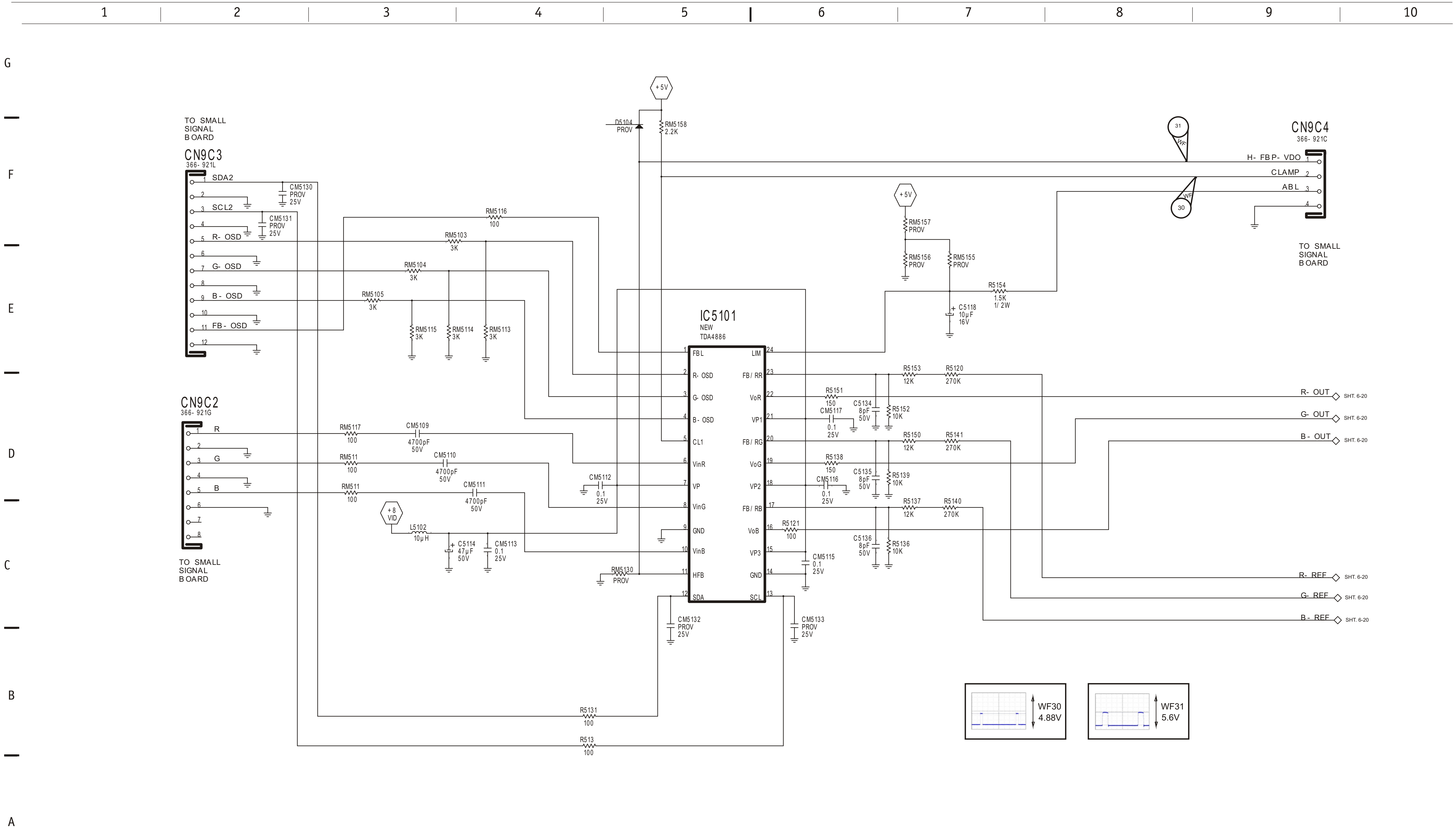
ALL COMPONENTS WITH “M” IN THE DESIGNATOR ARE A SURFACE MOUNTED COMPONENT.


CON11E1
6630VL02811
+12 VSB
TP1
MPI_DATA_IN
MPI_DATA_OUT
+5VSBF
IR_DATA
CLONESENSE-PTY-SELECT
SHT. 6-19
CON6E2
6630VL02811
+5V SBF
C4946 100μF 16V
R4984 1K
R4985 470
R4987 3.3K
R4983 1M
R4982 470K
Q4903 0TR733009AA KSA733C-Y
R4986 22K
Q4904 0TR945009AA KSC945C-Y
R4989 220
C4965 220pF 500V
R4991 4.7K
R4990 4.7K
Q4905 0TR945009AA KSC945C-Y
R4992 220
C4966 220pF 500V
R4996 470
R4995 10K
Q4906 0TR945009AA KSC945C-Y
R4993 10K
R4994 22K
C4967 220pF 500V
R4997 10K
MPI
6612VEH001A

RGB Card Circuit



RGB PREAMP



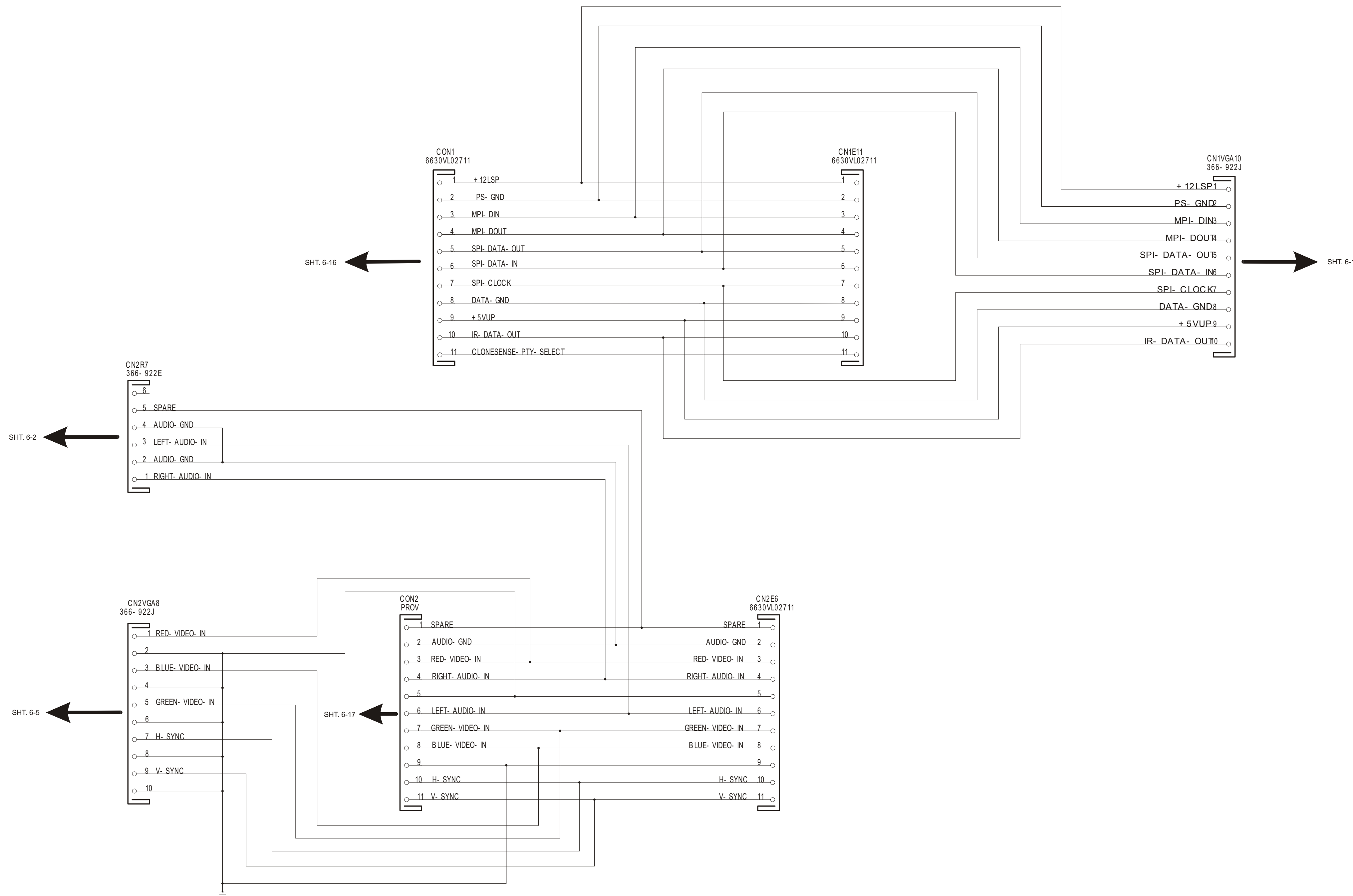
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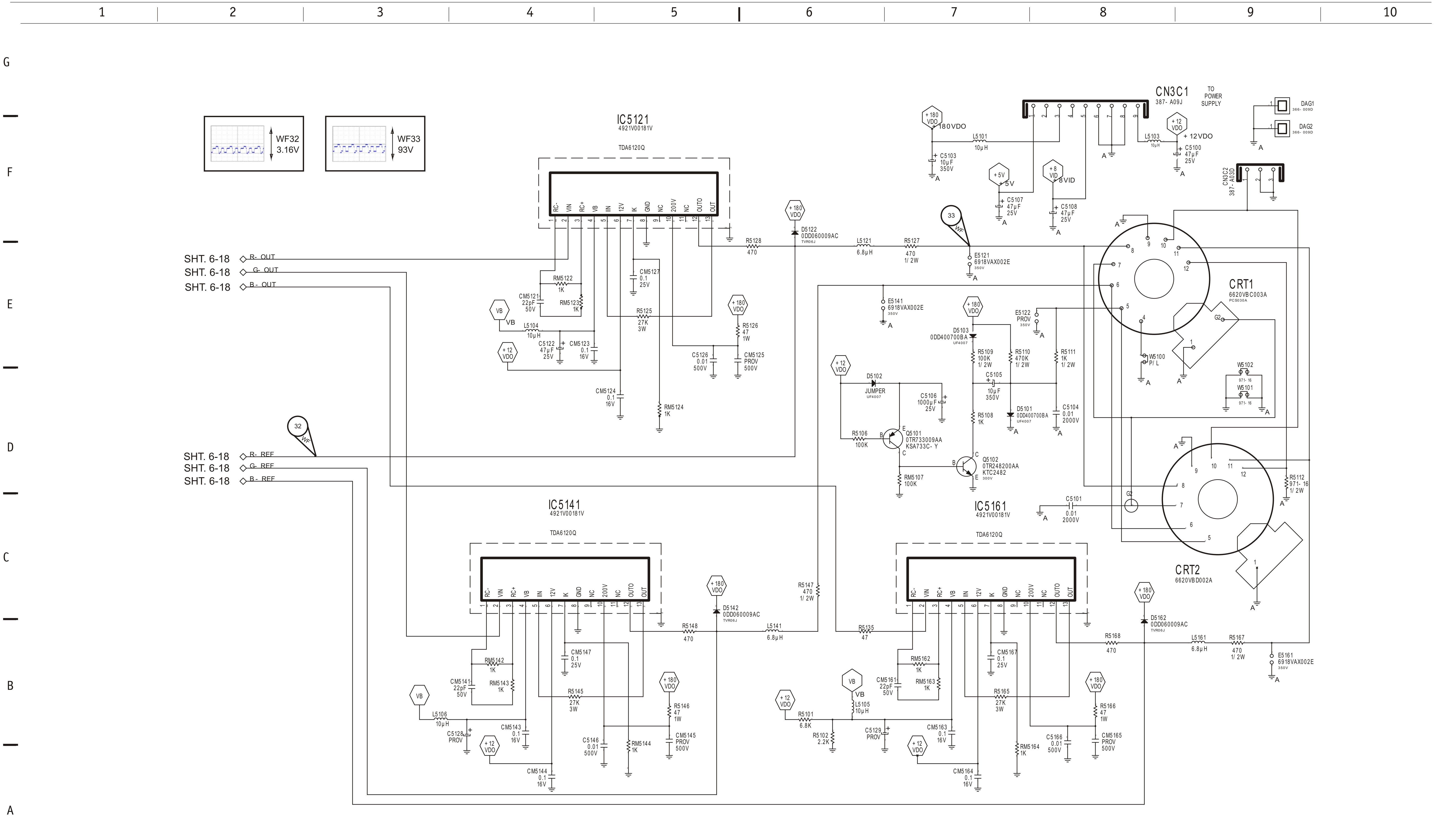
Edge Connector

1 2 3 4 5 6 7 8 9 10

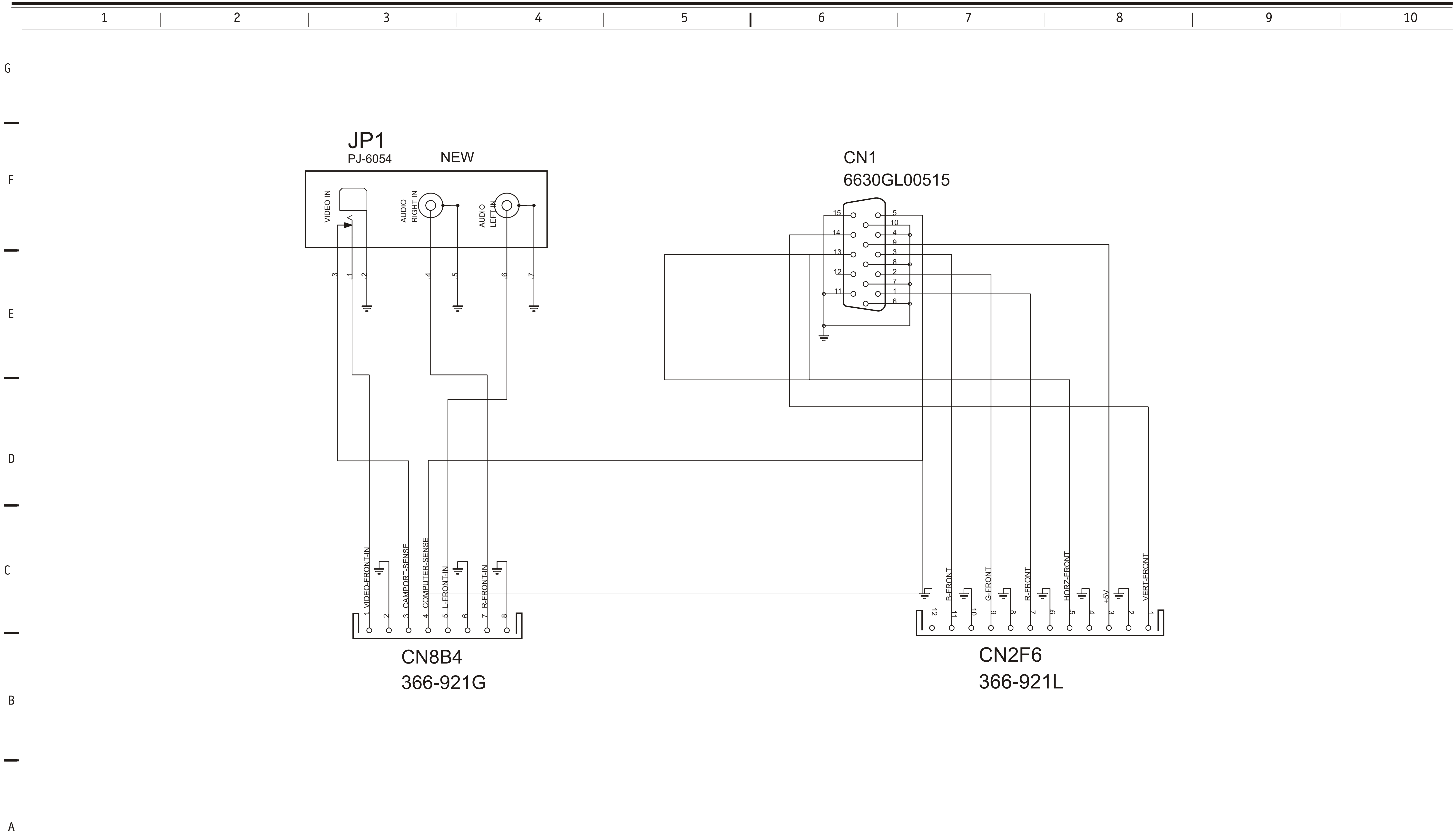
G F E D C B A



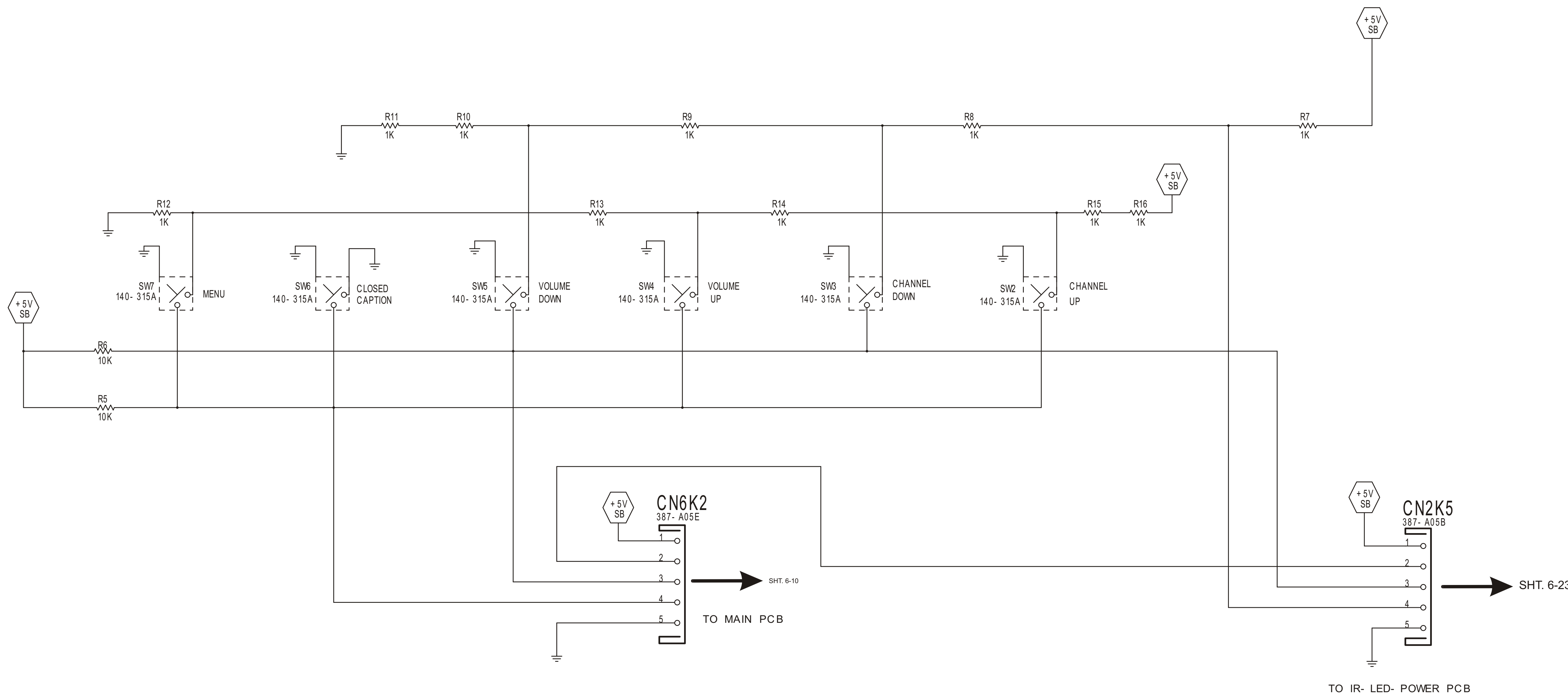
Video Output



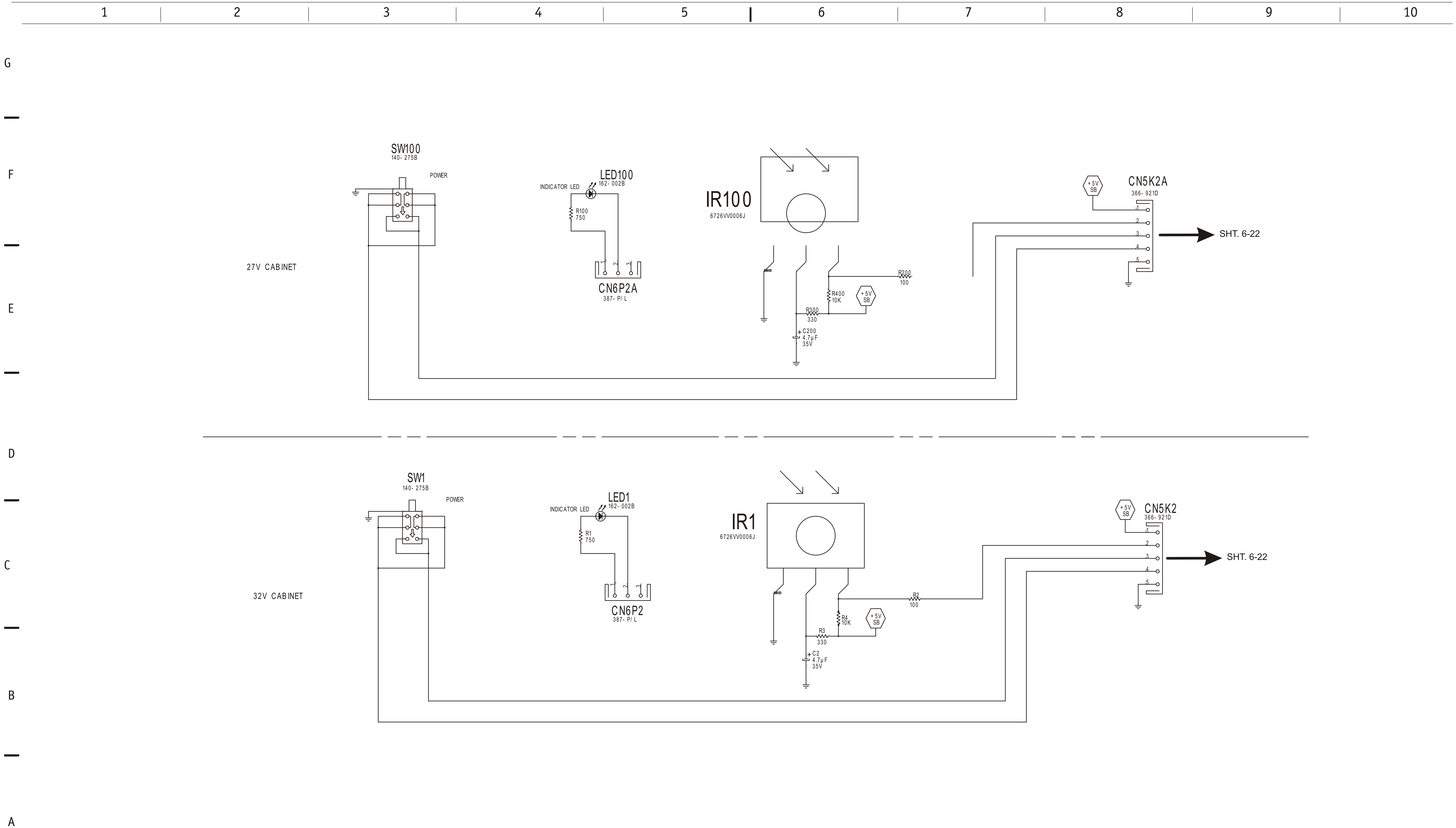
Front Jack Circuit



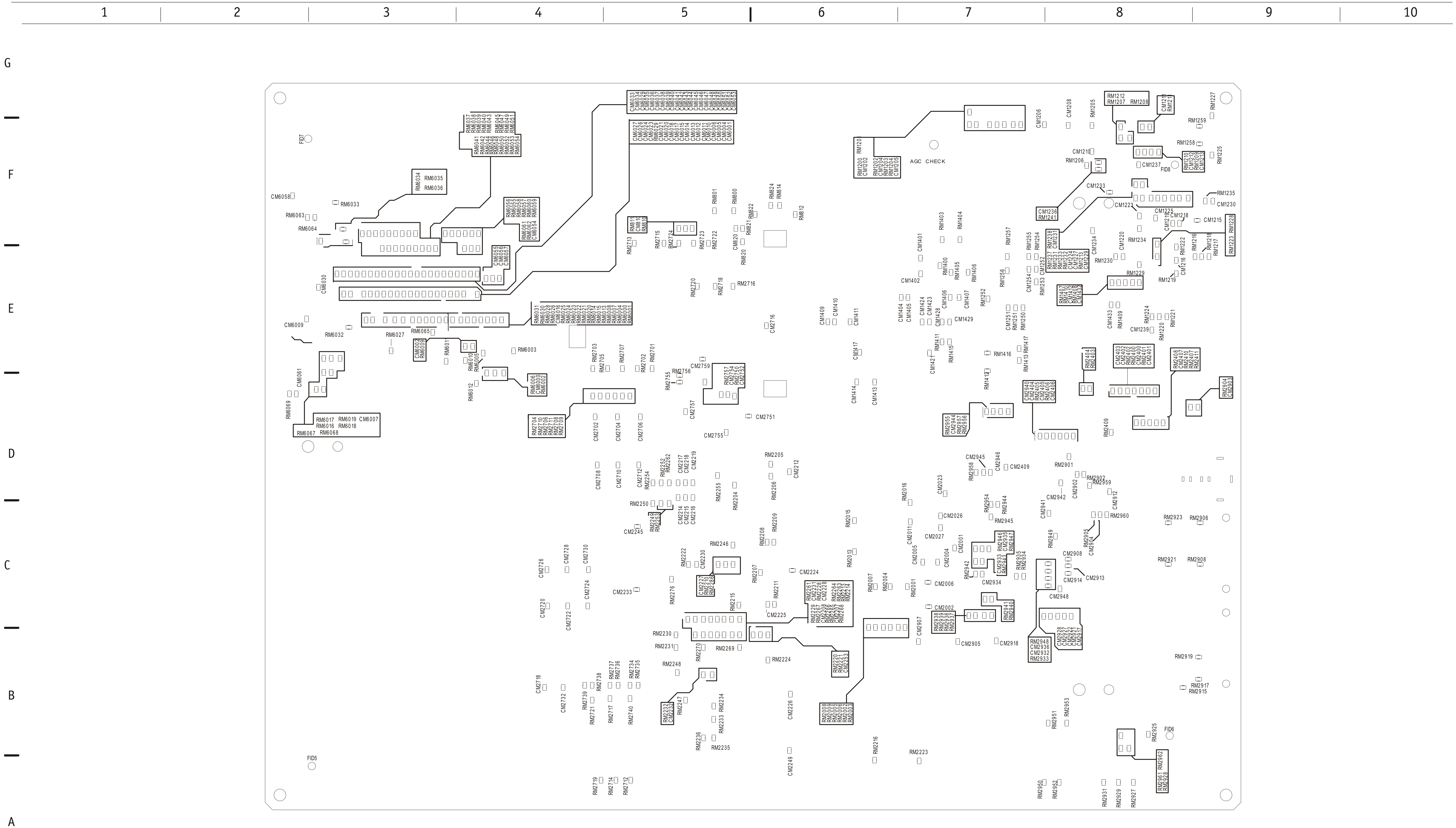
Keyboard Circuit



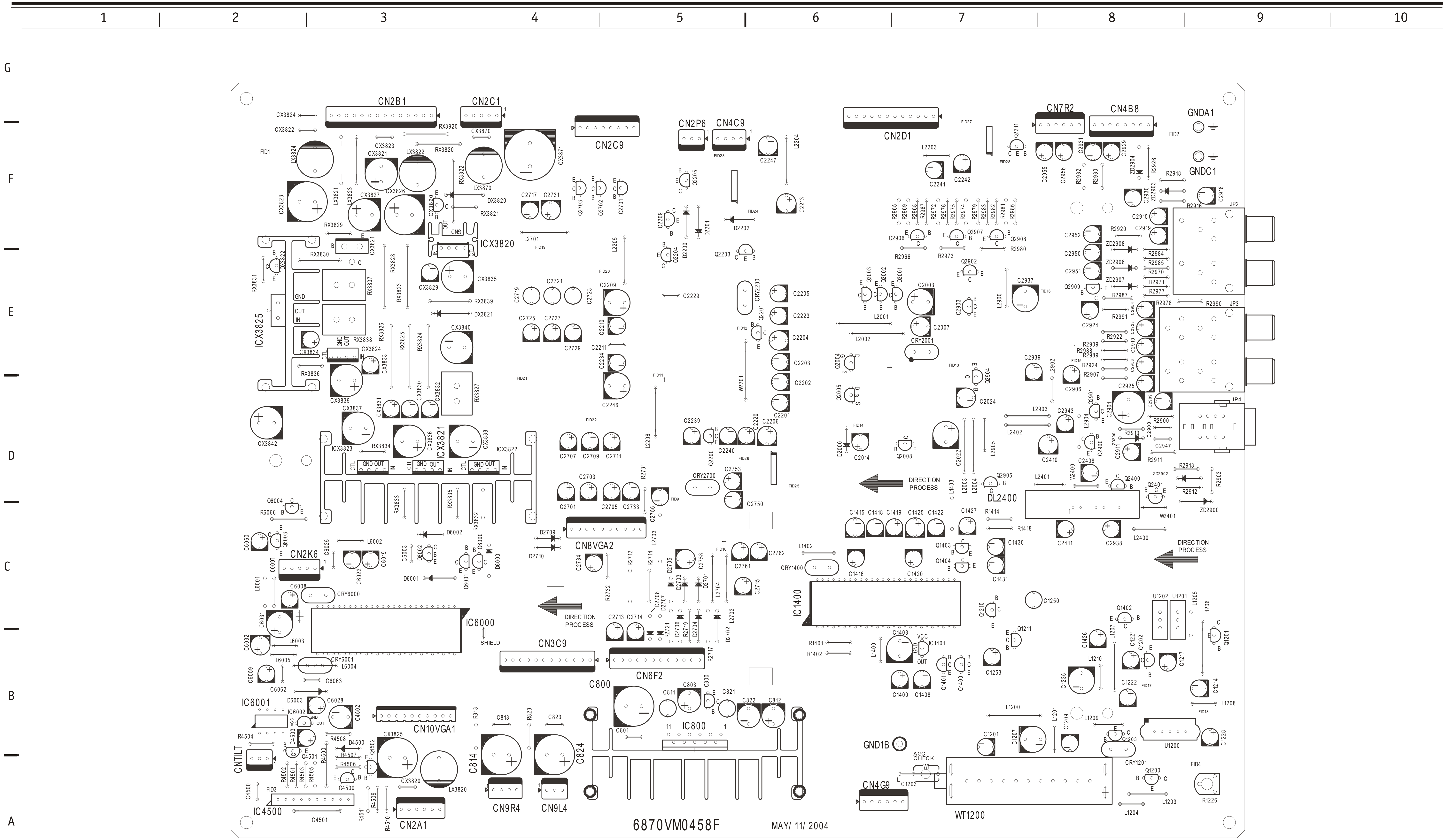
Ir Led Circuit



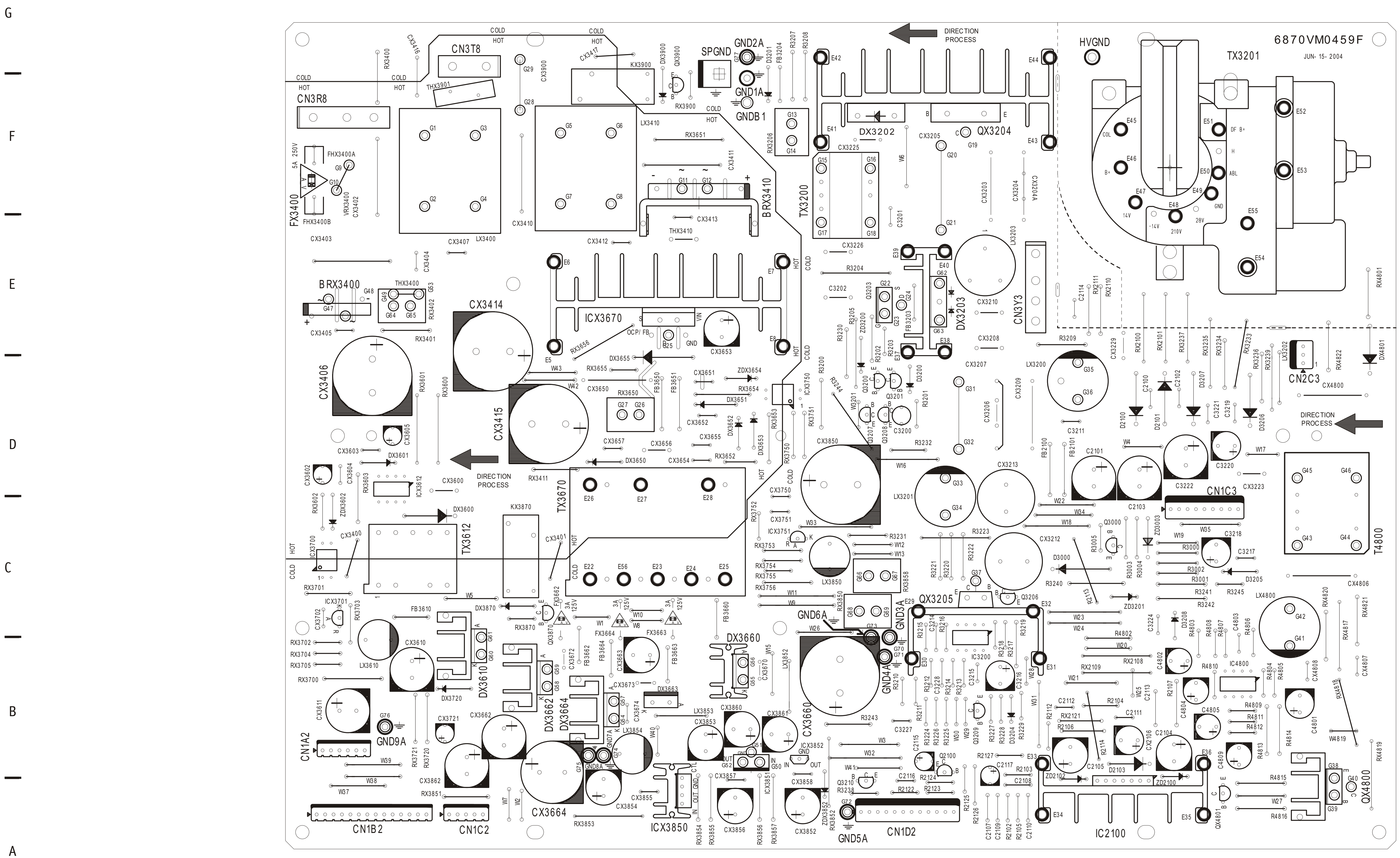
Small Signal Bottom



Small Signal Top



1 2 3 4 5 6 7 8 9 10



CRITICAL SAFETY COMPONENTS ARE IDENTIFIED BY THE LETTER "X" IN THEIR COMPONENTS DESIGNATORS. REPLACE ONLY WITH PART NUMBERS SPECIFIED.

ALL COMPONENTS WITH "M" IN THE DESIGNATOR ARE A SURFACE MOUNTED COMPONENT.

One Panel Bottom

1	2	3	4	5	6	7	8	9	10

G

F

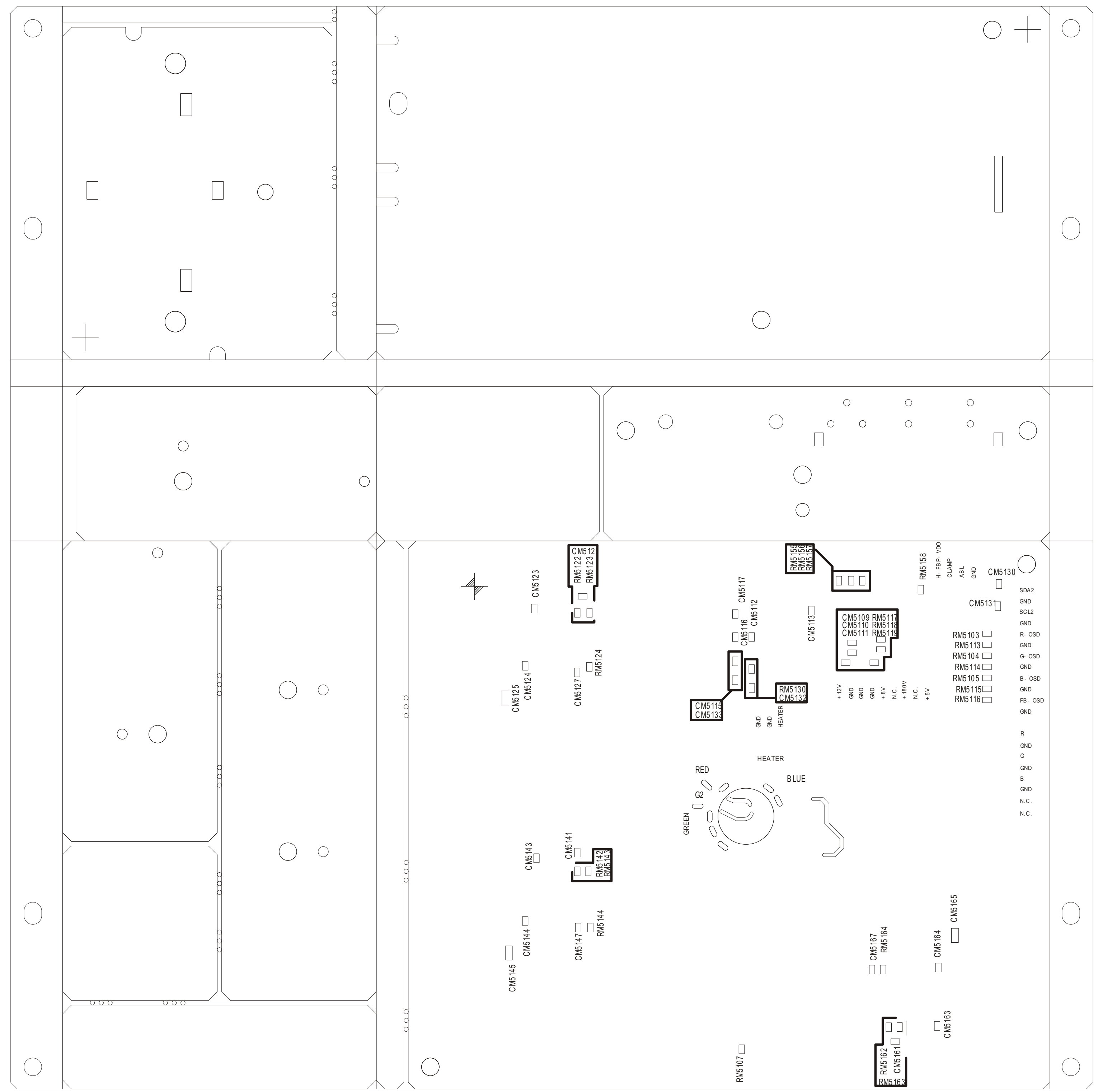
E

D

C

B

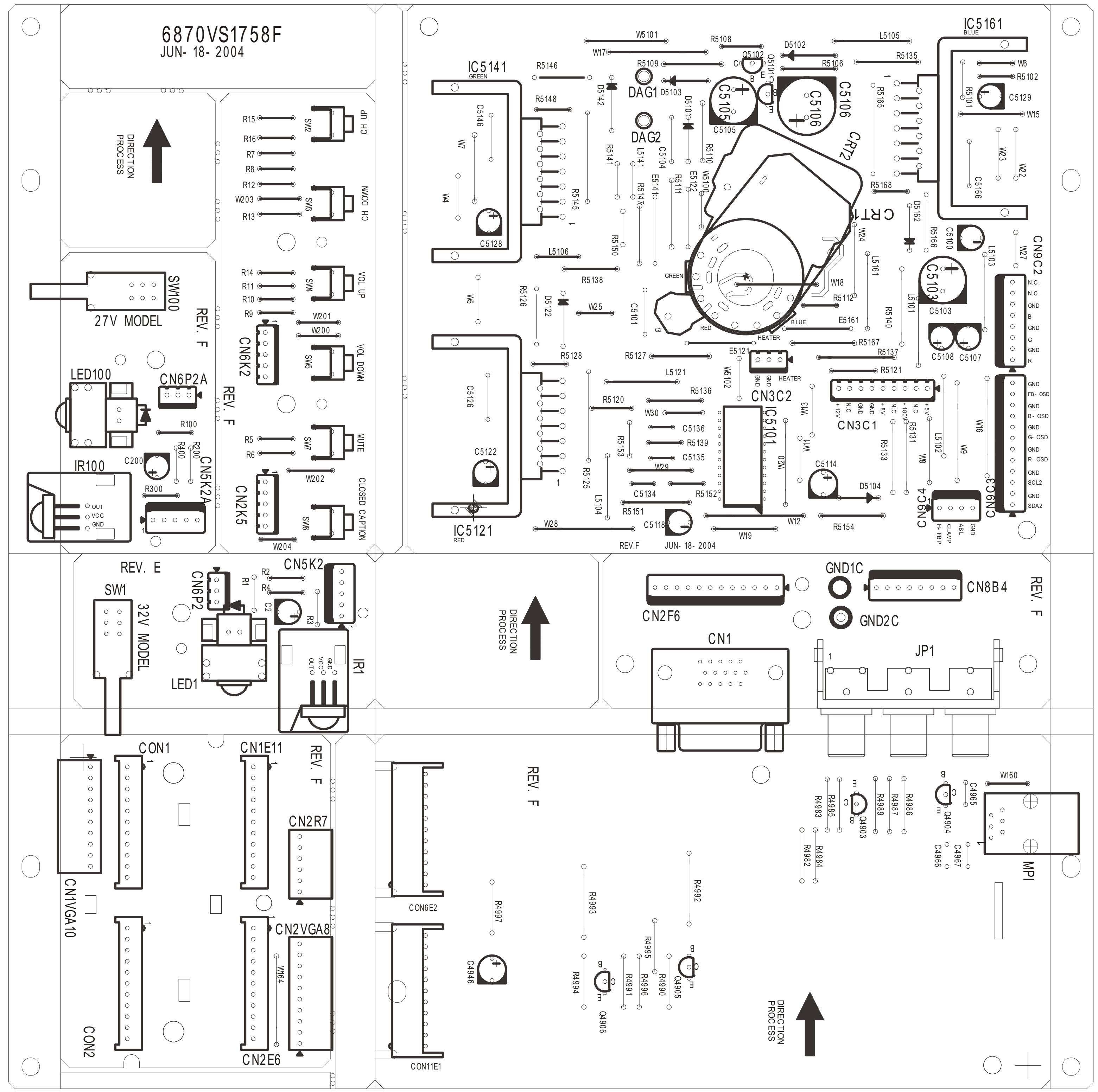
A



One Panel Top

1 2 3 4 5 6 7 8 9 10

G F E D C B A



zenith ®